UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

NORMAN BAILEY, THOMAS GALLIGHER, KPFF INVESTMENTS, INC., AND KEN PETERS

v.

BASF METALS LIMITED, GOLDMAN SACHS INTERNATIONAL, HSBC BANK USA, N.A., STANDARD BANK PLC, AND LONDON PLATINUM AND PALLADIUM FIXING COMPANY LTD.

Case No. 15 CV 1712

CLASS ACTION COMPLAINT

JURY TRIAL DEMANDED

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Plaintiffs, Norman Bailey, Thomas Galligher, KPFF Investments, Inc., and Ken Peters (collectively, "Plaintiffs"), individually and on behalf of all those similarly situated, as defined below, bring this class action for treble damages and injunctive relief and allege as follows:

NATURE OF THE ACTION

1. Throughout the Class Period (as defined below), Defendants met privately twice each London business day for what is aptly known as the London Platinum and Palladium Price Fixing (the "London Fixing" or "Fixing"). The Fixing set the benchmark prices for platinum and palladium. The morning session was known as the "AM Fixing," and the afternoon call was known as the "PM Fixing." The Fixing was supposed to involve Defendants conferring in real time to conduct an auction for the purchase and sale of "good delivery" platinum and palladium on each London business day. The equilibrium price reached during each auction – *i.e.*, the price where the Defendants' buy and sell orders were roughly equal – became the "Fix," the benchmark price adopted at that session of the Fixing.

2. As with numerous other financial benchmarks and commodities markets, however, evidence is mounting that the Fixing was manipulated by banks (and their co-conspirators) more concerned with profit than with market integrity, and more interested in colluding than competing. Rather than engage in the Fixing auction at arm's length, Defendants regularly subverted it by colluding with each other and engaging in trades (and sham quotes) before and during the Fixing that caused market prices, and Fix prices, to be driven downward consistently throughout the Class Period.

3. Defendants manipulated the Fixing because they had the opportunity and motive to do so. Defendants engage in large-scale proprietary trading in platinum and palladium futures on the New York Mercantile Exchange ("NYMEX") and other exchanges, and they buy and sell physical platinum and palladium in the spot market. The outcome of the London Fixing affects

physical platinum and palladium as well as derivatives based on these commodities. When platinum and palladium are bought, sold, speculated upon, or otherwise invested in, almost all of these transactions are either tied to or directly affected by the Fix price and what occurs during the Fixing window. Because the Fixing sets (or is understood to set) a benchmark price for Platinum and Palladium, it can result in large profits or losses for the Defendants. When the benchmark price for platinum or palladium moves lower, Defendants and their clients pay less for platinum or palladium purchased from miners, dealers, and other clients. When the benchmark price moves higher, Defendants take losses on "short" positions they maintain on the platinum or palladium futures market.

4. The PM Fixing aligns with the opening of the New York market, and specifically the NYMEX on which platinum and palladium futures and other derivative contracts are traded.[1] Defendants maintained large short positions on the NYMEX exchange, meaning they (generally) benefit from lower platinum and palladium prices on that market. The economic and other evidence overwhelmingly shows that Defendants sought to avoid the uncertainties and risks associated with the platinum or palladium derivatives market – *i.e.*, that the market would move against a Defendant's short position – by agreeing to manipulate the PM Fixing to artificially suppress the prices of platinum and palladium.

5. The Fixing was supposed to be the result of an "auction," *i.e.*, it was supposed to be the product of actual trading by arm's length competitors in the platinum and palladium markets. Clients would funnel orders through Defendants, who are horizontal competitors, and who sat on the panel responsible for setting prices at the Fixing. Defendants were then supposed

[1] NYMEX is owned by CME Group Inc. ("CME"). CME stands for Chicago Mercantile Exchange. CME owns and operates large derivative and futures exchanges in New York and Chicago, as well as online trading platforms.

to participate in the auction with other Defendants, based on their overall portfolio of orders. Instead, Defendants colluded to subvert the process, often before it even began.

6. The U.S. Department of Justice ("DOJ") and the Commodity Futures Trading Commission ("CFTC") are both actively investigating Defendants' and potential co-conspirators' manipulation of the price-setting mechanisms in precious metals markets, including specifically the platinum and palladium markets.[2] Switzerland's financial regulator, FINMA, also recently reported that it has "seen clear attempts to manipulate fixes in the precious metals markets."[3] FINMA unequivocally found that these attempts involved "collusion" among bullion banks similar to Defendants,[4] and that – "just as in foreign exchange trading" – the Fixing banks shared confidential client order information and expected future order information with other banks.[5] FINMA is currently investigating eleven currency and bullion traders at major banks.[6] Switzerland's competition commission ("WEKO") has also opened an investigation into

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[2] *See* Jean Eaglesham and Christopher M. Matthews, *Big Banks Face Scrutiny Over Pricing of Metals: U.S. Justice Department investigates price-setting process for gold, silver, platinum, and palladium*, The Wall Street Journal (Feb. 23, 2015), www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801; *see also* Jan Harvey, *CFTC subpoenaed HSBC Bank USA for documents on metals trading*, Reuters (Feb. 23, 2015), http://www.reuters.com/article/2015/02/23/us-precious-hsbc-cftc-idUSKBN0LR1C520150223.

[3] Nicholas Larkin and Elena Logutenkova, *UBS Precious Metals Misconduct Found by Finma in FX Probe*, Bloomberg (Nov. 12, 2014), www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html.

[4] FINMA, Press release: FINMA sanctions foreign exchange manipulation at UBS (Nov. 12, 2014), www.finma.ch/e/aktuell/Documents/mm_ubs-devisenhandel_20141112_e.pdf.

[5] FINMA, Foreign exchange trading at UBS AG: investigation conducted by FINMA – Report (Nov. 12, 2014), www.finma.ch/e/aktuell/Documents/ubs-fx-bericht-20141112-e.pdf.

[6] *See* Suzi Ring, Liam Vaughan and Hugo Miller, *Senior UBS FX, Metals Traders Among 11 Said to Face Swiss Probe*, Bloomberg (Nov. 26, 2014), www.bloomberg.com/news/2014-11-26/senior-ubs-fx-metals-traders-among-11-said-to-face-swiss-probe.html.

manipulation in the precious metals markets and particularly the London Fixings.[7] Other government regulators are investigating this conduct as well.

7. Armed with confidential client information obtained from other banks, Defendants worked together to impact what occurred both before and during the Fixing. Once Defendants identified the direction in which they wanted platinum and/or palladium prices to move, and compared each other's order books, they jointly decided how to maximize their benefits from manipulation of the Fixing. If one Defendant had orders going contrary to the direction desired by the group, these orders could be "netted off" with other Defendants, or third parties, in ways that would not impact the prices (and perceptions thereof) during the Fixing. On the other hand, if multiple Defendants had orders going in the desired direction, they could "build" orders, or "give ammo," to one bank so as to better control the timing of execution and thus maximize the movement of prices to their mutual benefit.

8. Defendants' large books of platinum and palladium business and their seats at the London Fixing put them firmly in the driver's seat to impact Fixing prices. Defendants used their combined information and orders to engage in a variety of manipulative tactics, including "front running" (trading in one's own positions in advance of customer orders to take advantage of the market's resulting move when the client's orders are placed), "spoofing" (placing large orders that are never executed), "wash sales" (placing large orders that are executed then quickly reversed), and "jamming" (using such techniques to trigger a stop-loss order or to avoid a bank's having to pay on an option or similar contracts).

9. All of these manipulative trading practices were designed to and did regularly

[7] *See* Joshua Franklin, *Swiss watchdog says look at possible gold market manipulation*, Reuters (Feb. 24, 2015), http://uk.reuters.com/article/2015/02/24/swiss-banks-probe-idUKL5N0VY4FQ20150224.

drive the price of platinum and palladium down during the critical period around the time of the Fixing. The fact that platinum and palladium markets are relatively illiquid made them more susceptible to these manipulative trading practices.

10. Proof of such manipulative behavior is replete in the data surrounding the Fixings. No matter how the data is analyzed, the result is the same: a clear picture that the market movements around the PM Fixing show behavioral patterns far out of line with movements at any other time of day. Specifically, the economic data shows that the prices of platinum and palladium routinely undergo large downward "spikes" shortly before, during, and after the Fixings far more often, and in much larger amounts, than at any other time of the day.

11. But the effect of manipulation is not restricted to the days on which these large downward "spikes" occurred. Instead, it was systematic and extended throughout the Class Period. The prices at the Fixings were much more frequently among the lowest prices on any given day than among the highest prices for that day.

12. Additionally, from 2008 through 2014, prices dropped on a statistically anomalous near 70% to 80% of the days on which a PM Fixing occurred. Together, these findings mean not only that prices at the Fixing were frequently suppressed when compared to same day prices, but also that having a decrease in prices throughout the PM Fixing window was by far the most likely outcome for any day during the Class Period.

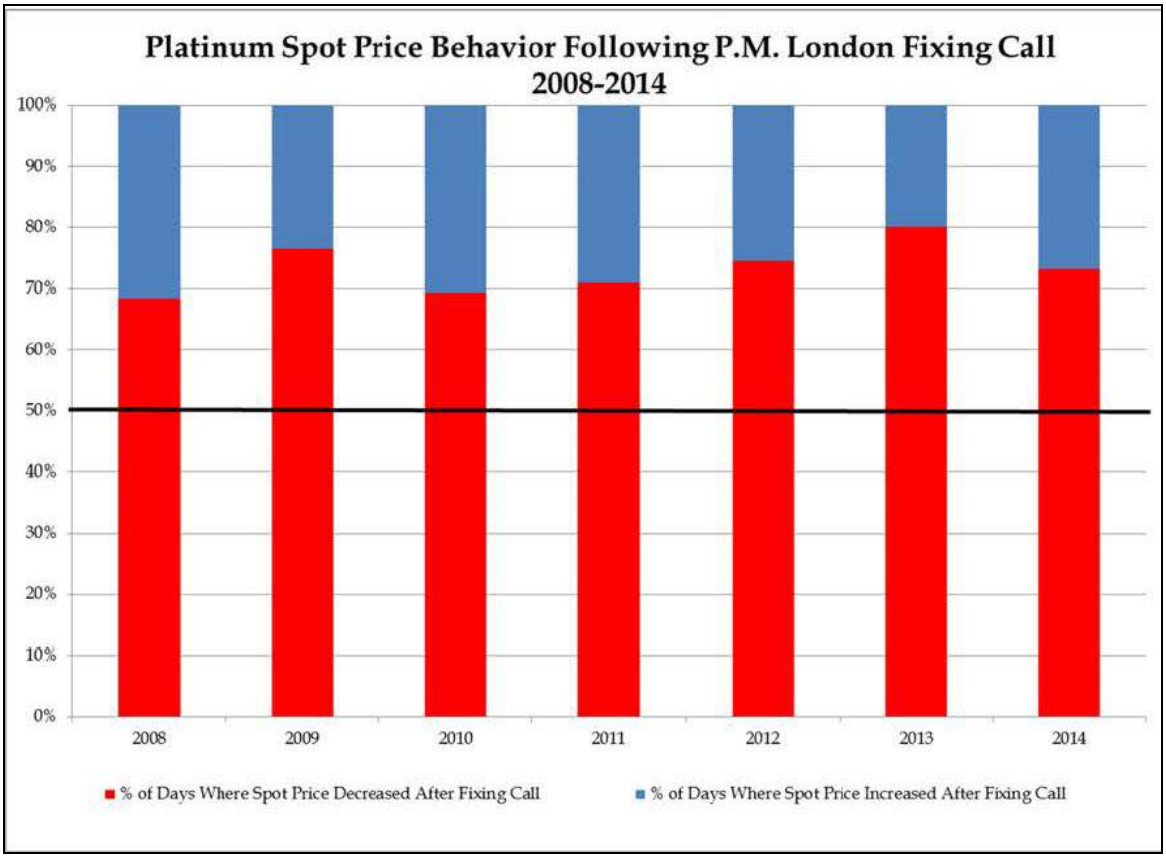
13. Defendants manipulated the PM Fixing in order to ensure this would be the case. Specifically, throughout the Class Period, the spot prices that Defendants were quoting for platinum and palladium immediately before, during, and after the Fixings were consistently and systematically lower than quoted prices by other market participants. There is no justifiable reason for Defendants' quotes around the Fixing to be persistently lower from those of other

market participants for over a decade, if not for their collusive behavior to manipulate spot prices downwards on a sustained basis.

14. This artificial pattern of price behavior around the Fixings can only be explained by collusion. For instance, these spikes cannot be explained as the market's reaction to new information revealed by the Fixings. Indeed, the downward trend often began *before* the Fixing began, and thus *before* there was any new information to digest – except, of course, by Defendants themselves, who through chat rooms, emails, and conference calls had shared information in order to know and control what was going to happen during the Fixing. Defendants also used proprietary trading platforms to coordinate intended prices movements with each other, including through the submission of spoof trades at the low levels to which they wished to move platinum and palladium prices.

15. Nor can the spikes be attributed to the market's reaction to new information because the spikes are highly disproportionate in the *downward* direction. Over the course of more than a decade, it is highly implausible that the PM Fixing presented so much more unexpected "bad" than "good" news to the market. Nor can these downward spikes be attributable to larger market trends.

16. The chart below identifies how often the final PM Fix prices were below the price for platinum just before the Fixings began, versus how often final PM Fix prices were above the price of platinum just before the Fixing began. From 2008 through 2014, Fix prices moved lower between nearly 70% to 80% of the time.



17. Investigations by various government regulators are ongoing, and changes to the Fixing process have occurred. But none of these changes have compensated the investors in platinum and palladium, and investments and securities whose value is based on platinum and palladium (together, "Platinum-Palladium Investments"[8]), like Plaintiffs, who were injured in their business and property by Defendants' collusive and manipulative conduct. Plaintiffs seek redress in this action on their own behalf and on behalf of the Proposed Class.

JURISDICTION AND VENUE

18. This Court has subject matter jurisdiction over this action pursuant to Sections 4 and 16 of the Clayton Act (15 U.S.C. §§ 15(a) and 26), Section 22 of the Commodity Exchange

[8] "Platinum-Palladium Investments" refers to physical platinum or palladium and platinum and palladium derivatives such as platinum or palladium futures on NYMEX and forwards, shares of platinum or palladium ETFs, and all options on platinum or palladium prices, including options on NYMEX.

Act (7 U.S.C. § 25), and pursuant to 28 U.S.C. §§ 1331 and 1337(a).

19. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a), 22 and 28 U.S.C. § 1391(b), (c), (d) because during the Class Period all Defendants resided, transacted business, were found, or had agents in this District; a substantial part of the events or omissions giving rise to these claims occurred in this District; and a substantial portion of the affected interstate trade and commerce discussed herein has been carried out in this District.

20. The NYMEX, where much of the affected trading takes place and whose prices were manipulated, is located in the Southern District of New York.

21. This Court has personal jurisdiction over each Defendant, because each Defendant: transacted business throughout the United States, including in this District; had substantial contacts with the United States, including in this District; and/or committed overt acts in furtherance of their illegal scheme and conspiracy in the United States. In addition, the conspiracy was directed at, and had the intended effect of, causing injury to persons residing in, located in, or doing business throughout the United States, including in this District.

22. The activities of Defendants and their co-conspirators were within the flow of, were intended to, and did have a substantial effect on the foreign and interstate commerce of the United States.

THE PARTIES

A. Plaintiffs

23. Plaintiff Norman Bailey is an individual residing in Ontario, Canada. During the Class Period, Mr. Bailey sold NYMEX palladium futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Bailey was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for palladium futures contracts, and otherwise

suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

24. Plaintiff Thomas Galligher is an individual residing in Phoenixville, Pennsylvania. During the Class Period, Mr. Galligher sold NYMEX platinum futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Galligher was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for platinum futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

25. Plaintiff KPFF Investment, Inc. f/k/a KP Investments, Inc. ("KPFF") is a corporation with its principal place of business in Irvine, California. During the Class Period, KPFF sold physical platinum and palladium at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. KPFF was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for physical platinum and palladium, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

26. Plaintiff Ken Peters is an individual residing in Irvine, California. During the Class Period, Mr. Peters sold physical platinum and palladium at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Peters was deprived of transacting in a lawful, non-manipulated, competitive market for Platinum and Palladium Investments, including in the segment for physical platinum and palladium, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

B. Defendants

27. Whenever in this Complaint reference is made to any act, deed, or transaction of any entity, the allegation means that the corporation engaged in the act, deed, or transaction by or through its officers, directors, agents, employees, or representatives while they were actively engaged in the management, direction, control, or transaction of the entity's business or affairs.

28. Defendant BASF Metals Limited ("**BASF Metals**"), a subsidiary of BASF SE, has its principal place of business in London, England. BASF also maintains precious metals trading operations in Iselin, New Jersey. BASF Metals was formerly known as Engelhard Metals Limited, when the latter was acquired by BASF SE in May 2006. After the acquisition, BASF Metals assumed Engelhard Metals Limited's role as a participating member in the London Fixing. BASF is also a market-making member of The London Platinum and Palladium Market ("LPPM"). BASF Metals conducts proprietary trading in the platinum and palladium markets. During the Class Period, BASF Metals entered directly into platinum and palladium spot, forward, option and platinum and palladium ETF share transactions with members of the Class.

29. Goldman Sachs International ("**Goldman Sachs**") is a financial services company and a subsidiary of The Goldman Sachs Group, Inc., with its principal place of business in London, England. Goldman Sachs also maintains precious metals trading operations in New York, New York. Goldman Sachs (through its J. Aron & Company division) is a participating member in the London Fixing and a full member of LPPM. The term Goldman Sachs includes Goldman Sachs International and its subsidiaries and affiliates. Goldman Sachs conducts proprietary trading in the platinum and palladium markets. During the Class Period, Goldman Sachs entered directly into platinum and palladium spot, forward, option and platinum and palladium ETF share transactions with members of the Class.

30. Defendant HSBC Bank USA, N.A. ("**HSBC**"), a subsidiary of HSBC Holdings

Plc, is a banking and financial services company. HSBC maintains its principal place of business in Mclean, Virginia. HSBC also maintains a branch in London, England. HSBC is a participating member in the London Fixing and a full member of LPPM. The term HSBC includes HSBC Bank USA, N.A. and its subsidiaries and affiliates. HSBC conducts proprietary trading in the platinum and palladium markets. During the Class Period, HSBC entered directly into platinum and palladium spot, forward, option and platinum and palladium ETF share transactions with members of the Class.

31. Defendant Standard Bank Plc ("**Standard Bank**"), a subsidiary of Standard Bank Group Limited, is a South African banking and financial services company. It maintains its principal place of business in London, England. Standard Bank is a participating member in the London Fixing and a full member of LPPM. Standard Bank is the current Chair of the London Fixings. The term Standard Bank includes Standard Bank Plc and its subsidiaries and affiliates. Standard Bank conducts proprietary trading in the platinum and palladium markets. During the Class Period, Standard Bank entered directly into platinum and palladium spot, forward, option and platinum and palladium ETF share transactions with members of the Class.

32. Defendant London Platinum and Palladium Fixing Company Ltd. ("**LPPFC**") is a U.K. company headquartered in London, England. The LPPFC was formed "to take on and continue the promotion, administration and conduct of the London Platinum and Palladium Market Fixings." The LPPFC was originally founded by and is currently owned and controlled by the other Defendants. The directors that control the day to day operations of the LPPFC are also primarily representatives of the other Defendants. During the Class Period, LPPFC administered and published the London Fixing prices. On October 16, 2014, the LPPFC announced that it would no longer bear responsibility for administering the Fixings. Instead,

from December 1, 2014, the London Metal Exchange ("LME") would be the new administrator of the new, twice-daily global price-setting process for platinum and palladium.

33. Various other entities and individuals unknown to Plaintiffs at this time participated as co-conspirators in the acts complained of, and performed acts and made statements that aided and abetted and were in furtherance of the unlawful conduct alleged herein.

FACTUAL ALLEGATIONS

I. BACKGROUND ON THE PLATINUM AND PALLADIUM MARKETS

A. The London Platinum-Palladium Fixing Price Process

34. The London Fixing is a relatively recent creation. The London Platinum Quotation, the predecessor to the Fixing, was established in 1973, and was a twice-daily indication of the market price for spot platinum, reported by some of the principal companies dealing in this precious metal. However, this was an informal trading system, and in 1987 it was formalized via the establishment of the LPPM. Two years later, the London Fixing was formally established for platinum and palladium.

35. Defendants are "full members" of the LPPM, along with Barclays Bank PLC, Credit Suisse, Deutsche Bank AG, Johnson Matthey PLC, JPMorgan Chase Bank, Mitsui & Co. Precious Metals Inc. (London Branch), Standard Chartered Bank, The Bank of Nova Scotia, ScotiaMocatta, and UBS AG. "Full membership," according to the LPPM, is "open to those companies in the UK currently engaged in trading and dealing in platinum and palladium and are recognized by the [LPPM] Management Committee as offering additional services in the UK to the market, including market-making, clearing services, refining or manufacturing."

36. The Fixing was held out as an organized "Walrasian" auction among Defendants for the spot price of physical platinum and palladium. Market participants send their orders to Defendants. In a competitive market, not subject to Defendants' manipulative conduct,

Defendants would consolidate their respective customer orders, as well as any proprietary orders from their own trading desks. The fixing process would then begin with the Chair announcing a starting price (also known as the "Opening Price") for "loco" (short for location) London or Zurich platinum or palladium, stated in U.S. dollars, which is usually at or near the current spot price. Each of the remaining three participating fixing members then would declare themselves as either a net buyer or a net seller, or as having no interest at the starting price.

37. If there is no buying and no selling interest at the starting price from any participating member, the Chair may announce the Opening Price as the "fixed" price. If at the staring price there is only a selling or a buying interest, the Chair will ask for figures and then may either: (a) declare the price as "Fixed" if the quantity offered or sought is matched exactly or is within 4,000 troy ounces[9]; or (b) move the Opening Price lower or higher until there is two-way interest – *i.e.*, a match between a net buyer and a net seller.

38. If the Chair must move the price to obtain two-way interest, the increments in which the moves occur is determined by: (a) the prevailing bid/offer price in the platinum or palladium futures market as quoted on the CME adjusted to the physical London spot market using a prevailing Exchange for Physical (*i.e.*, an exchange of a position in the underlying physical instrument for a corresponding futures position); (b) the prevailing bid/offer price on electronic trading platforms representing the spot market price; and (c) the level of buying and selling interests declared in the Fixing.

39. The Chair chooses the level of price increments it considers necessary in order to match supply with demand.

[9] A troy ounce (oz t) is a unit of measure, most commonly used to gauge the mass of precious metals. One troy ounce is defined as exactly 31.1034768 grams. There are 14.583 troy ounces in one pound.

40. At any time during the Fixing, a participating member or its customers may increase or decrease an order, withdraw a previously declared buying or selling order, or place a new order. In the event of such an occurrence, a participating member may call a "flag" to suspend the Fixing so that it may recalculate its overall interest. When the flag is called, the Chair is not permitted to call the platinum or palladium prices "Fixed."

41. When buy and sell orders are matched, the Chair declares that the prices for platinum and palladium are fixed and states the time at which they have been fixed and the final price in U.S. dollars. Once the Fix prices for platinum and palladium have been declared by the Chair, buy and sell orders declared in relation to those Fix prices may not be altered or withdrawn by the firms participating in the Fixing. The Chair also provides the equivalent trading prices in pounds sterling and euros using the then-prevailing exchange rates published on Bloomberg or Reuters and read out these rates at the end of the call.

42. The Chair then matches up the participating firms' orders and specifies the trades that must then be executed between the participating firms. The Chair fills the largest seller's order first by matching that order with the largest buyer's order, with the participating firms' orders then being matched in descending order size.

43. Where the Chair has been unable exactly to match supply and demand and has instead declared the price as fixed when the difference between quantities of platinum and palladium bid and offered was 4,000 troy ounces or less, the Chair pro-rates the difference between supply and demand between the participating firms.

44. Cash-settled, platinum- and palladium-based financial products, such as futures and options, are directly impacted by the physical prices assessed through the Fixing.

45. In an open and transparent system of price discovery for platinum and palladium,

all market participants should have the opportunity to see in real-time bids and offers for platinum and palladium to gauge their prices. However, the Fixing was designed in such a manner that held market participants hostage to the dealings of four large and heavily self-interested participants in the platinum and palladium markets, *i.e.*, Defendants. This gave Defendants the opportunity and motive to manipulate the price reached by the Fixing to their advantage, particularly with respect to their own holdings in both platinum and palladium and platinum and palladium-based financial products, like futures and options. Defendants took full advantage of this opportunity to the detriment of a truly competitive market.

46. During the Class Period, the Fixing occurred twice daily: 9:45 a.m. GMT/4:45 a.m. EST (the AM Fixing) and 2:00 p.m. GMT/9:00 a.m. EST (the PM Fixing), the latter to accommodate the U.S. trading day. During each fixing call, the fixing members first set the price of platinum and then set the price of palladium. During the Class Period, the four participating members in the Fixing were Defendants Standard Bank, BASF Metals (obtaining its seat after its acquisition of Engelhard Metals Limited in May 2006), Goldman Sachs, and HSBC. Standard Bank is the current Chair of the Fixing.

47. On October 16, 2014, the LPPFC announced that it would no longer bear responsibility for administering the Fixings.[10] Instead, from December 1, 2014, the LME would be the new administrator of the Fixing. The LME administers the Fixing through LMEbullion which "provides a fully automated price-discovery process, holding two daily auctions at 9.45am and 2pm. Authorised traders participate through a secure web interface, where they can view the auction price and each submit their interest until a final price is set. LMEbullion . . . provid[es]

[10] LPPFC Press Statement, (Oct. 16, 2014), http://www.sharpspixley.com/uploads/StatementfromLondonPlatinumandPalladiumFixingCompanyLtd161014.pdf.

near real-time auction commentary and anonymised buy/sell figures."[11]

48. LMEbullion requires a quorum of participants for an auction to progress.[12] When the auction commences, traders indicate their interest in displayed potential execution prices. The price is fixed when the interest of all participants is "within the permitted tolerance."[13] If the interest is outside of the permitted range, a new price is calculated and displayed in another "round" and participants re-select their interest in the new potential execution prices until a price is set. Once a price is set, the price is disseminated via LMEbullion, LME.com and data distributors.

B. The Fixings Directly Impact Prices for Platinum-Palladium Investments

1. Physical and derivative platinum-palladium investments

49. The global physical platinum and palladium markets are large, opaque, and complex over-the-counter ("OTC") markets, and operate alongside active and transparent exchange-based platinum and palladium derivatives markets.

50. Like most commodities, the prices of platinum and palladium are driven – or at least are supposed to be driven – by supply and demand. The Fixing is held out as a procedure to find the equilibrium price, at which the demand for platinum and palladium equals the supply through an auction by the member banks.

51. Some of the international demand for platinum and palladium is met through spot contracts on the over-the-counter segment of the markets. A spot contract is a contract where a

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[11] LME Press Release, *LME announces successful launch of LBMA Platinum and Palladium Prices* (Dec. 4, 2014), www.lme.com/news-and-events/press-releases/press-releases/2014/12/lme-announces-successful-launch-of-lbma-platinum-and-palladium-prices.

[12] LME Press Release, *LBMA Platinum Price and LBMA Palladium Price* (undated), www.lme.com/~/media/Files/Metals/Precious%20Metals/LBMA%20Platinum%20and%20Palladium%20Prices%20from%20the%20LME.pdf

[13] *Id.*

buyer and seller agree to settlement (payment and delivery) on a spot date, which is normally two business days after the trade date. The settlement price is called the spot price. Sales at "spot" are often tied or keyed to the relevant metal's Fixing on the day of the sale.

52. The spot platinum and palladium markets are OTC markets with no central exchange, operating 24-hours a day. Major players in the platinum and palladium spot markets include members and affiliates of the LPPM, including the four participants in the Fixing – Defendants Standard Bank, BASF Metals, HSBC, and Goldman Sachs. These entities and others compete for customers in the platinum and palladium markets.

53. There are numerous other participants that enter the platinum and palladium markets from time to time, including platinum and palladium producers (*e.g.*, miners and refiners), consumers (*e.g.*, jewelers and industrials), and investors (*e.g.*, pension funds, hedge funds, and individuals). One of the largest uses for platinum and palladium are in the production of catalytic converters, which curb harmful emissions from automobiles. From 2009 – 2013, the autocatalyst and jewelry segments of the platinum market comprised the two largest sources of demand. In 2013, gross demand for platinum was over 8 million ounces, and gross demand for palladium was over 9.6 million ounces.

54. Apart from physical platinum and palladium OTC transactions, some of the most heavily traded platinum- and palladium-based financial products are platinum and palladium futures and options. The aggregate annual value of platinum futures has surpassed $100 billion each year since 2011. The aggregate annual value of palladium futures has surpassed $40 billion since 2011.

55. The markets for platinum and palladium derivatives involve financial instruments whose value depends on the underlying price of physical platinum or palladium on the spot

market. Platinum and palladium derivatives include platinum and palladium futures and options contracts. A platinum or palladium futures (or forward) contract is a bilateral agreement for the purchase or sale of an agreed amount of platinum or palladium at a specified date in the future. That type of contract can be traded over-the-counter (a forward) or on an exchange (a future). In the United States, most exchange-traded platinum and palladium futures and options are traded on NYMEX, which has been designated by the CFTC as a contract market pursuant to Section 5 of the Commodity Exchange Act, 7 U.S.C. § 7. NYMEX is an organized centralized market that provides a forum for trading NYMEX platinum and palladium futures and options contracts.

56. For each platinum and palladium futures contract, the buyer takes a "long" position on platinum or palladium, meaning it agrees to pay for a specified amount of platinum or palladium and take delivery at the expiry of the contract. The seller takes a "short" position, meaning it will receive payment for the platinum or palladium and make delivery. Only a small percentage of all futures contracts traded each year on NYMEX and other exchanges result in actual delivery of the underlying commodities. Instead of taking physical delivery of platinum or palladium, traders generally offset their futures position before their contracts mature.

57. For example, a purchaser of a platinum or palladium futures contract can cancel or offset its future obligation to the contract market or exchange clearinghouse to take delivery of platinum or palladium by selling an offsetting futures contract. The difference between the initial purchase or sale price and the price of the offsetting transaction represents the realized profit or loss.

58. Platinum and palladium option contracts can be traded over-the-counter or on an exchange. A call gives the holder of the platinum or palladium option the right, but not the obligation, to buy the underlying platinum or palladium futures contract, or the underlying metal

itself, at a certain price – the "strike" price – up until a fixed point in the future (*i.e.*, the option's expiry). A put gives the holder the right, but not the obligation, to sell the underlying platinum or palladium futures contract, or the underlying platinum or palladium itself, at the strike price until the option's expiry. An investor that buys a put option generally expects the price of platinum or palladium to fall (or at least seeks to protect against downside risk), and an investor that buys a call option generally expects the price of the relevant metal to rise. The price at which an option is bought or sold is called the "premium."

59. Through these various contracts and trades, there are many ways to "go short" (*i.e.*, profit from price decreases) or "go long" (*i.e.*, profit from price increases). The entity that is short benefits as prices fall. The seller of a futures contract, for instance, can then offset the position by purchasing another futures contract, pocketing the difference in price. The seller of a call option benefits if the spot price falls below the strike price, since the seller collects the option premium and pays nothing to the purchaser. At expiry, if the price of platinum or palladium exceeds a call option's strike price, the rational holder will exercise the call option, which means the seller of the call option, if unhedged, will have to sell the futures contract at the strike price and cover its position, paying the difference between the prevailing price and the strike price.

2. Platinum-Palladium exchange-traded funds

60. Exchange-traded funds ("ETFs") issue securities that track an industry index (*e.g.*, the S&P 500), a commodity (*e.g.*, gold or silver), or a basket of assets in the same way as an index fund, but which are shares that trade on an exchange. Securities issued by ETFs experience price changes throughout the day reflecting supply and demand as they are bought and sold, where that supply and demand is heavily influenced by supply and demand within the industry, or for the commodity or assets, that the ETF tracks.

61. There are ETFs that invest only in platinum or palladium and whose shares are linked directly to platinum or palladium prices ("Platinum-Palladium ETFs"). The largest Platinum ETF is Physical Platinum Shares ("PPLT"); the key Palladium ETF is Physical Palladium Shares ("PALL"). The goal of PPLT and PALL is for their shares to reflect the performance of the price of platinum and palladium, respectively.[14] The price of shares issued by these ETFs correlates very closely to the spot price of platinum or palladium itself.

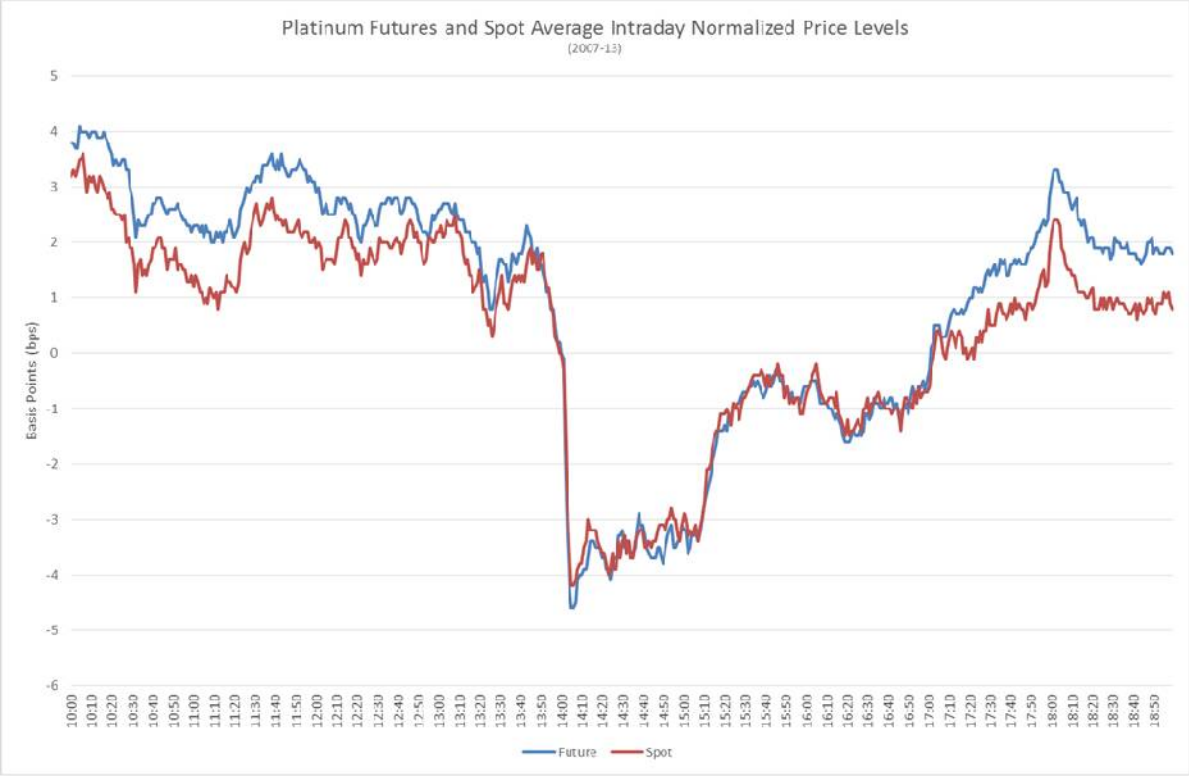
3. The Fixing impacts prices of physical and derivative investments, and the share prices of ETFs

62. Defendants seized upon the Fixing as means to manipulate the market for Platinum-Palladium Investments because of its widespread impact on the price of Platinum-Palladium Investments. Many physical supply contracts – such as contracts for the sale of raw platinum or palladium by miners – explicitly incorporate prices from the Fixing. The Fixing also impacts the price of platinum and palladium futures and options on these futures contracts. This is because exchange prices closely track the price of spot platinum or palladium. Changes in the price of one will be almost immediately reflected in the other. The spot, Fix, and NYMEX settlement prices are virtually tied to each other and exhibit an almost perfect correlation. This tight correlation holds true no matter what is happening in the market for Platinum-Palladium Investments, as seen in the following charts.

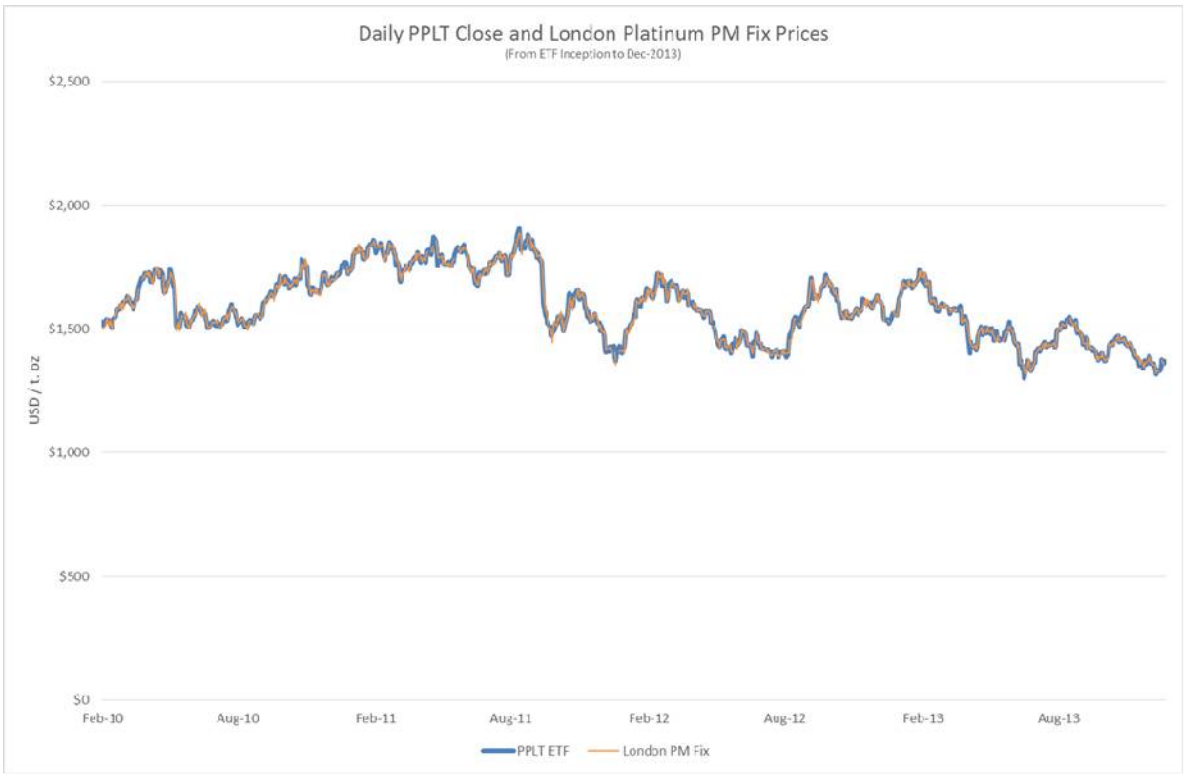
[14] *See, e.g.*, ETFS PPLT Prospectus (December 2, 2014), at 23: "The investment objective of the Trust is for the Shares to reflect the performance of the price of physical platinum, less the Trust's expenses."; ETFS PPAL Prospectus (December 2, 2014), at 23: "The investment objective of the Trust is for the Shares to reflect the performance of the price of physical palladium, less the Trust's expenses."

63. To confirm the correlation between prices reached at the Fixing and in the markets for Platinum-Palladium Investments, economists retained by Plaintiffs also analyzed

spot, futures, and ETF price data, and concluded that platinum or palladium futures contracts are significantly impacted by the London PM Fixing. The following chart depicts the daily normalized average intraday platinum spot prices (in red) and NYMEX futures prices (in blue), and illustrates how closely the spot and NYMEX prices were correlated from 2007 through 2013. For present purposes, the chart is presented to confirm that the two move in tandem. But it is also worth noting that, like many other studies performed in connection with this complaint, the data here shows a large anomalous downwards spike around the time of the Fixings – not just in spot prices, but in NYMEX prices as well.

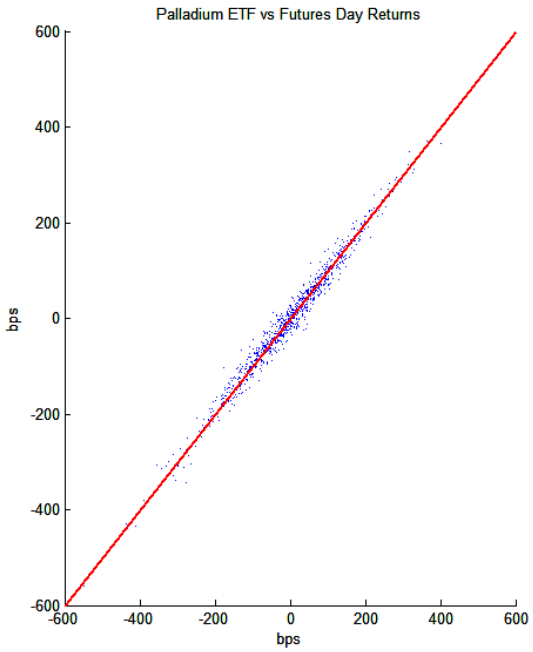


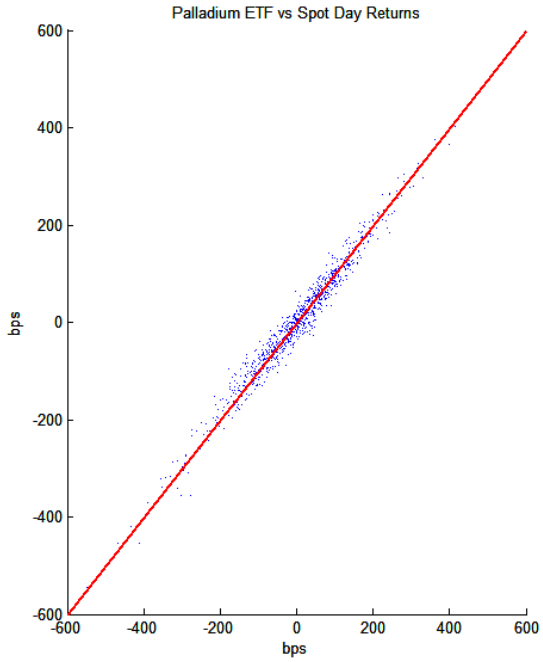
64. The next chart confirms that prices of platinum and palladium ETF shares, too, move in unison with movements in the Fix price. The chart tracks prices on the daily Fixing and the daily prices of PPLT and PALL. Once again, the PM Fixing prices for platinum and palladium and prices for the PPLT and PALL ETFs are virtually indistinguishable.

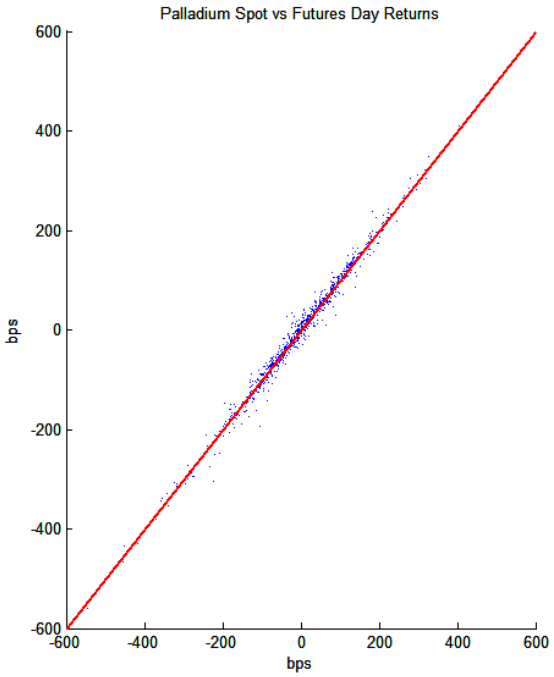


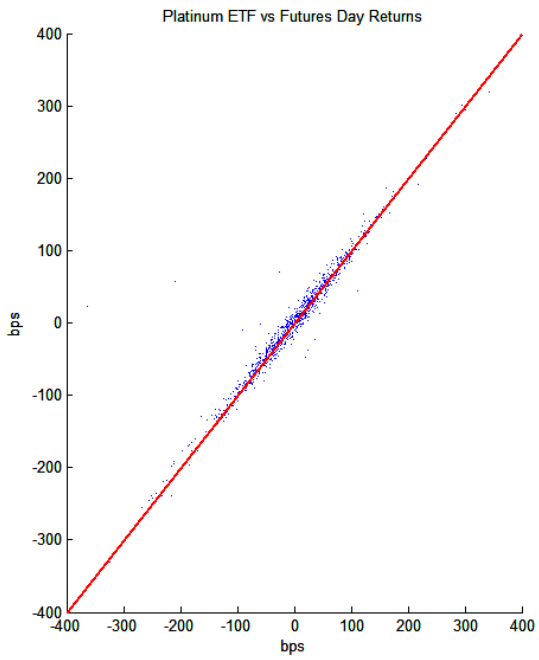
65. Another way to see the tight correlation between prices in the ETF, futures, and spot markets for Platinum and Palladium Investments is to plot the prices on a graph and to

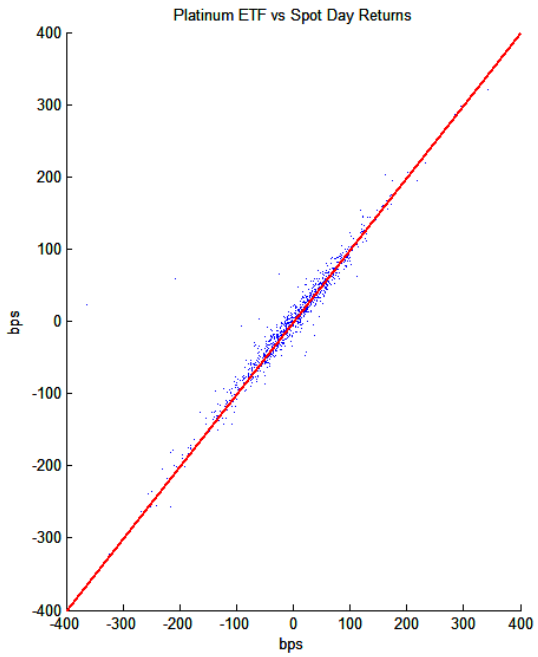
measure the correlation between them. On the charts below, the red line represents a theoretical line of perfect correlation, *i.e.*, as the prices in one of the ETF, futures or spot markets for Platinum and Palladium Investments moved, the other moved in the exact same relative amount at the exact same time. The blue dots represent actual pricing data. The tight clustering of the actual pricing data around the red line again confirms that, as PM Fixing prices move, so too do prices in the ETF, futures and spot markets.

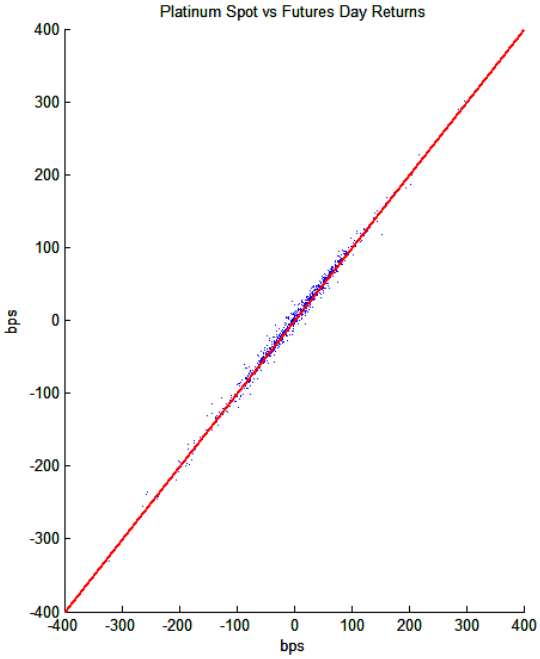












66. The correlation coefficients of prices in the markets for Platinum and Palladium demonstrated by the above charts – where a correlation coefficient of "1" would be perfect correlation – are as follows:

a. Platinum ETF to Futures = 0.97
b. Platinum ETF to Spot = 0.96
c. Platinum Spot to Futures = 1.00
d. Palladium ETF to Futures = 0.98
e. Palladium ETF to Spot = 0.98
f. Palladium Spot to Futures = 0.99

67. These relationships make sense: the various instruments (Spot, Futures and ETFs) have a common underlying economic good, be it platinum or palladium. Any price changes in one instrument are very quickly transmitted and imputed in the others. Arbitrageurs actively monitor and rapidly trade away any price differentials that may momentarily exist, keeping the markets of these instruments tightly correlated.

68. As expanded upon below, Defendants frequently manipulated the Fixings so that Fix prices would set at lower levels than competitive market forces would have dictated. This not only caused artificially low prices in the spot market, but also – because of the relationships discussed above – artificially lowered prices on NYMEX for both futures and options, for securities of platinum or palladium ETFs, and for other Platinum-Palladium Investments. Thus, Defendants' suppression of the platinum and palladium benchmarks directly affected the price of physical platinum and palladium, platinum and palladium futures, and Platinum-Palladium ETF shares, and other Platinum-Palladium Investments, causing the Class to sell these investments at artificially low prices.[15]

69. Indeed, as indicated above, Plaintiffs sold Platinum-Palladium Investments on days that have been identified by Plaintiffs' expert consultants as being days on which the price for platinum and/or palladium was suppressed, in accordance with the methodologies discussed below. They were, thus, like all other Class Members, directly impacted by Defendants'

[15] Plaintiffs do not have comparable price information for over-the-counter platinum or palladium derivatives, but expect to find the same close price correlation when this information is provided through discovery.

manipulation of the markets for Platinum-Palladium Investments. For example, the PPLT ETF uses the PM London Fix price as its benchmark.

II. MULTIPLE ECONOMIC ANALYSES REVEAL ARTIFICIAL DOWNWARD SPIKES AROUND THE TIME OF THE FIXINGS

70. As confirmed by Congressional testimony and academic publications, "screens" are statistical tools based on economic models that use data such as prices, bids, quotes, spreads, market shares, and volumes to identify the existence, causes, and scope of manipulation, collusion, or other illegal behavior. For instance, the use of "screens" was part of the initial analysis that eventually led to the discovery of the LIBOR rate-setting scandal that is still roiling the banking industry. Experts and reporters uncovered anomalous behavior in that interest-rate benchmark as compared to movements in other publically available data points (data points that were independent of the banks' purported individualized judgment).[16] Screens also led to the initial detection, in the summer of 2013, of foreign exchange benchmark collusion and manipulation, which resulted in excess of $3 billion in first round settlement payments by banks in the U.S., the U.K., and Switzerland in November 2014.[17]

71. The "screens" developed and employed by Plaintiffs' expert consultants show signs of manipulation occurring within the platinum and palladium markets. The data consistently reveals that the price spikes occur far more often around the Fixings than during any other part of the day. The data further reveals that those price spikes are greater in severity than when price spikes occur during other times of the day. And the spikes occurring around the

[16] *See generally* Testimony of Rosa M. Abrantes-Metz on behalf of the Office of Enforcement Staff, Federal Energy Regulatory Commission (Sept. 22, 2014), http://elibrary.ferc.gov/idmws/doc_info.asp?document_id=14274590.

[17] *See* Liam Vaughan and Gavin Finch, *Currency Spikes at 4 P.M. in London Provide Rigging Clues*, Bloomberg (Aug. 27, 2013), www.bloomberg.com/news/2013-08-27/currency-spikes-at-4-p-m-in-london-provide-rigging-clues.html.

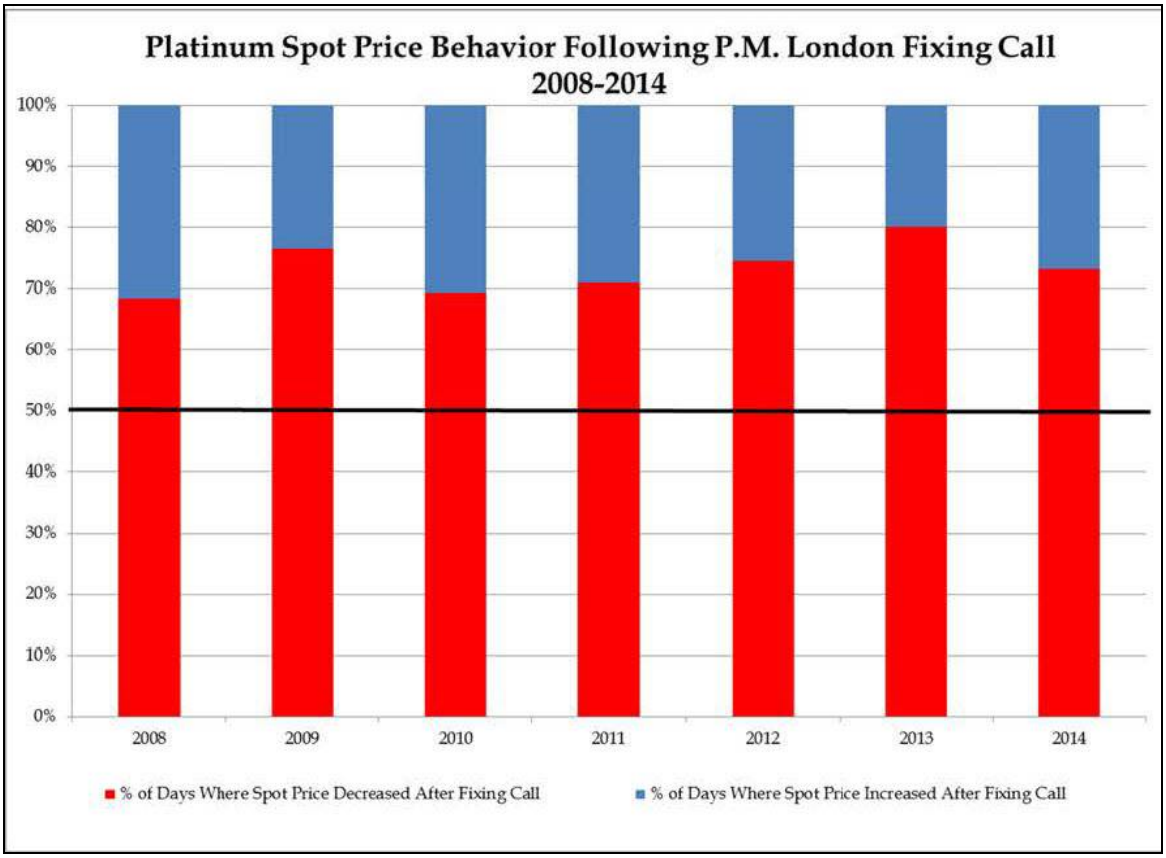
Fixings are disproportionately in one direction – downward.

72. It is telling that these spikes very often begin *before* the official Fixing commences, because it is only Defendants (and their co-conspirators) working together who could know where the Fix prices would end up. The evidence provided by all of these screens is overwhelming – prices around the Fixings not only moved abnormally and sharply in one direction, but they acted in a way that can only be explained by the joint manipulative conduct of the entities in charge of the Fixings – namely, Defendants here.

A. The PM Fix Prices Were Often Below the Spot Price at 2:00 p.m.

73. One method of uncovering anomalies in the behavior of prices around the time of the PM Fixing is to chart on how many days the spot price at 2:00 p.m. London Time (the start of the PM Fixing) was higher than the eventual PM Fix price, however many minutes later the PM Fixing concluded. That is, how often the PM Fixing resulted in a lower spot price. One would naturally expect – when a large and diverse set of days over a period of years is studied – the prices during each day's fixing window to move up equally often as down. Indeed, the opening of the "auction" begins with what is supposed to be the current spot price. While prices can and do move as the Fixing unfolds, there is no reason (absent collusion) that one would expect those prices to move predominantly one way or the other over many repetitions of the Fixing.

74. Thus, one way to determine if prices are behaving abnormally – and thus, whether they are indicative of artificial manipulation – is to compare the percentage of days from 2008 to 2014 during which the price fell during the Fixing window (red in the chart below), compared to the percentage of days in which the price went up during the Fixing window (blue bars).



75. As can be seen above, for seven consistent years prices fell between the start and end of the PM Fixing far more often than they rose between the start and end of the PM Fixing. These results are statistically anomalous – given that it is at least equally likely that prices would move up or down during the Fixing, the number of days on which the price decreased should be the same as the number of days on which the price increased.

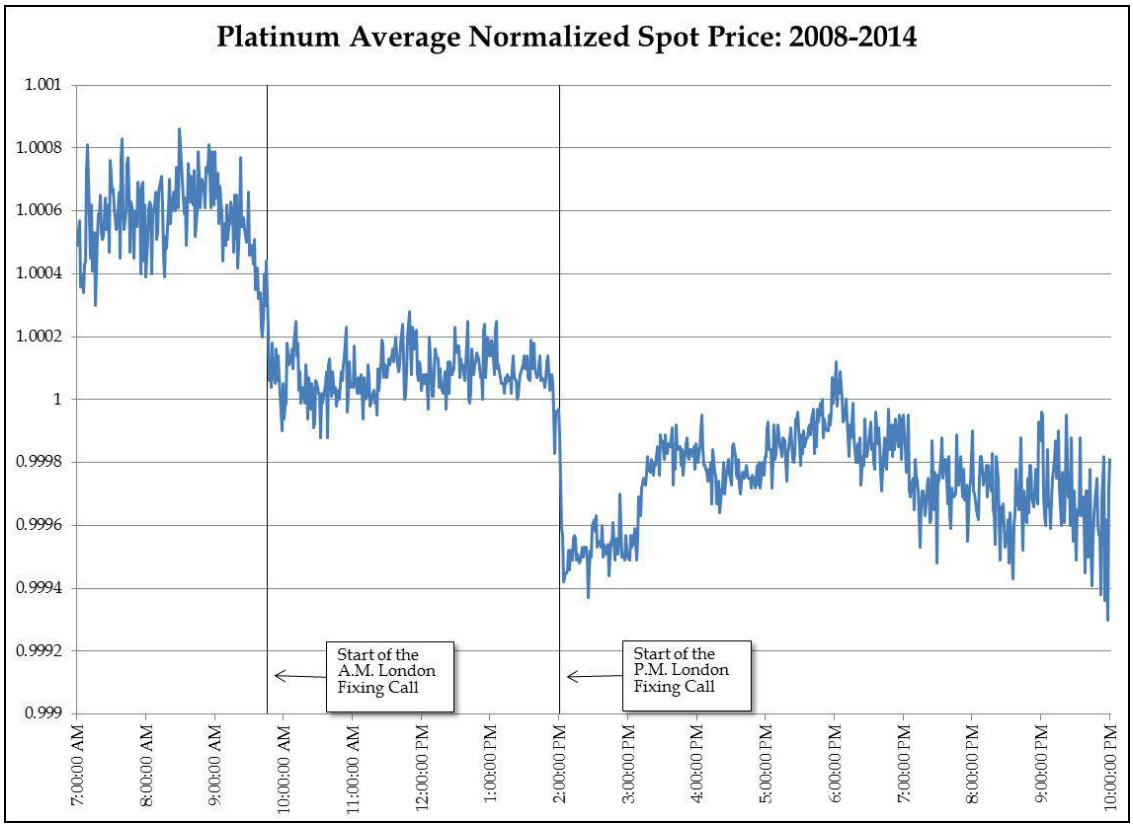
B. A Comparison of Minute-by-Minute Prices Reveal a Pattern of Price Spikes Around the Fixing

76. Plaintiffs worked with economists to examine closely the available data to determine *how much* unusual behavior could be seen around the PM Fixing, beyond counting the number of days when prices went up or down.

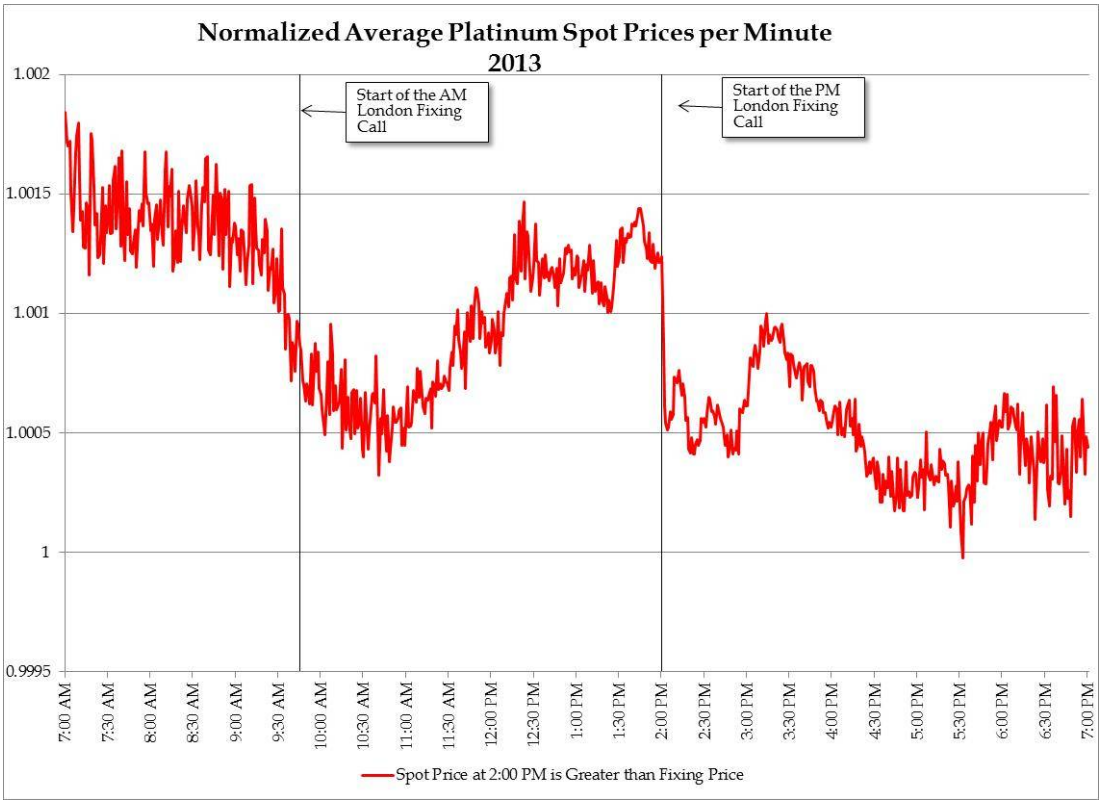
77. Plaintiffs' expert consultants looked at intraday-minute tick data, which shows the upward or downward movement in price from one minute to the next. Prices were normalized

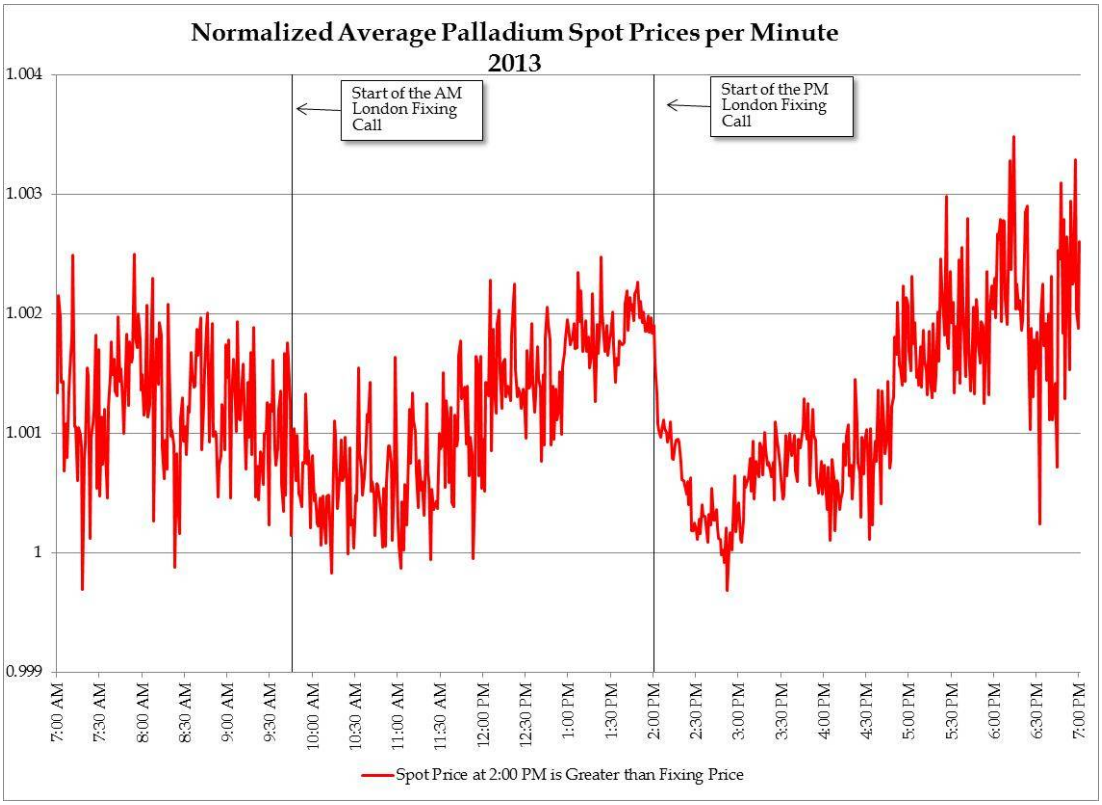
by the average price within the same day so that prices within that day can be compared to the next day's movements, even if the prices are very different in absolute or dollar terms. This is particularly important in platinum and palladium because prices can vary by many dollars from day to day, or month to month, within the same year. Normalization thus enables one to see whether pricing behavior at a particular time of day demonstrates a pattern of abnormal behavior as compared to pricing patterns at other times during the day.

78. The graphs below present a clear picture of large price spikes beginning just before the PM Fixing and continuing until about the time the PM Fixing end. This data again shows that prices tended to move downward around the PM Fixing. But it also demonstrates the unusual size and intensity of the downward spikes surrounding the PM Fixing. While other times of day see their ups and downs over time, none are as steep as the downward price spikes around the PM Fixing.



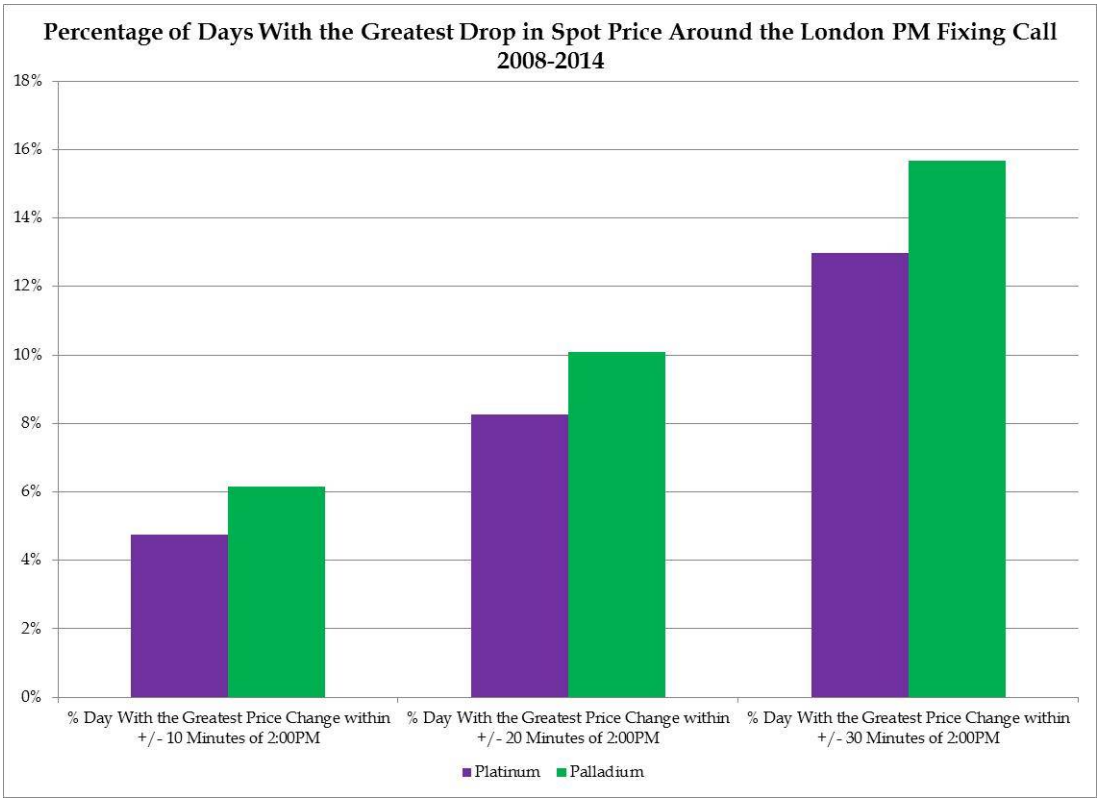
79. These same trends of sharp downward spikes in prices can also be seen when the data is viewed on an aggregate level. For example, the following charts for normalized average platinum and palladium spot prices per minute show that for the whole of 2013 significant downward spikes shortly before the PM Fixing.





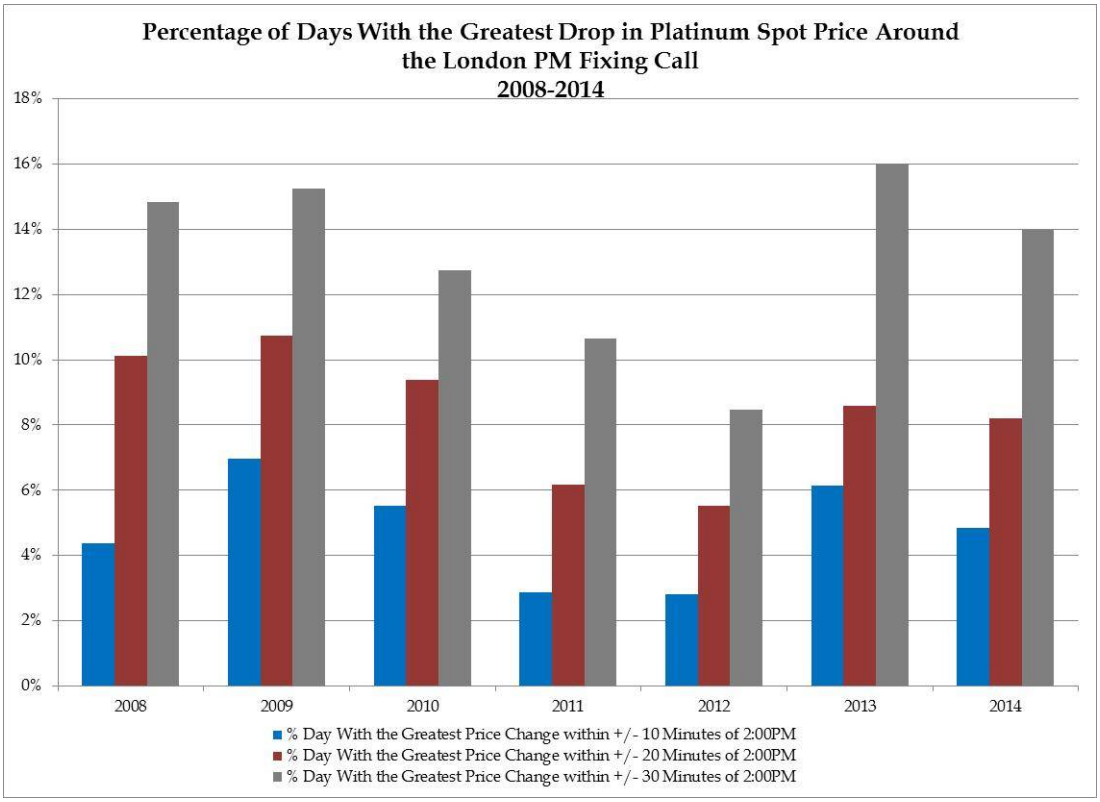
C. The PM Fixing's Downward Spikes Stand Out as Against Movements at Any Other Time of Day

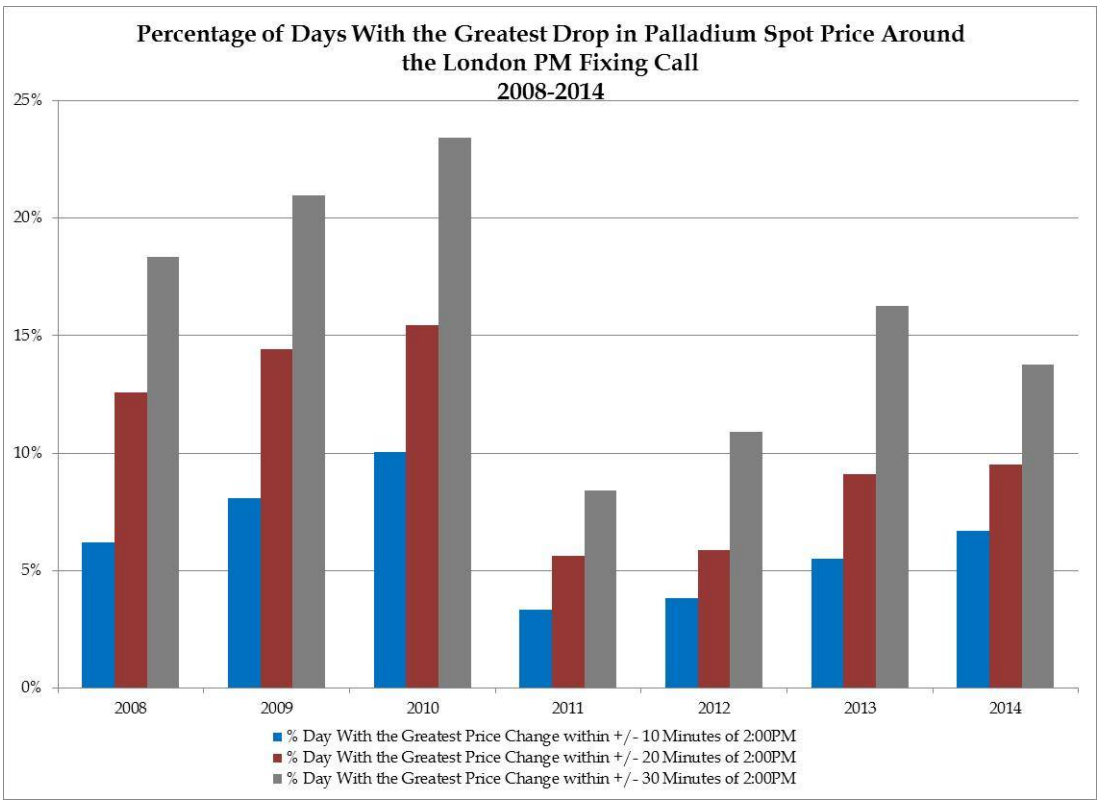
80. Price spikes can occur for any number of reasons. But the point of the above charts – which gather data across an entire year's worth of trading days – is that the largest spike of a day is far more likely to occur around the PM Fixing than any other time of day. Indeed, as the following charts demonstrate, the incidence of largest downward price spikes of a day within a +/- 10 minute window of the fixing is much larger for platinum and palladium than would be expected if the price changes occurred randomly throughout the day. The experts identified these "worst minutes" of the day by comparing the price at all minutes with the prices both before and after that minute, and flagging those minutes where the price deviated most from other minutes around it.



81. During the fifteen hour trading day in the platinum and palladium markets, there are forty-five different +/- 10 minute windows, just over twenty two different +/- 20 minute windows, and fifteen different +/- 30 minute windows. The chances of the greatest price change for an entire trading day occurring within the +/- 10 minute, +/- 20 minute, or +/- 30 minute window around the PM Fixing is accordingly 2.2%, just less than 4.5%, and just less than 6.7%, respectively. Yet analysis again shows that the greatest drop in prices for both platinum and palladium occurred during the windows around PM Fixing far more often that these averages suggest that it should have.

82. Instead, as the following charts demonstrate, the greatest drop in the price of platinum and palladium occurred during the window around the PM Fixing more often that probability would suggest for *every year during the class period*.



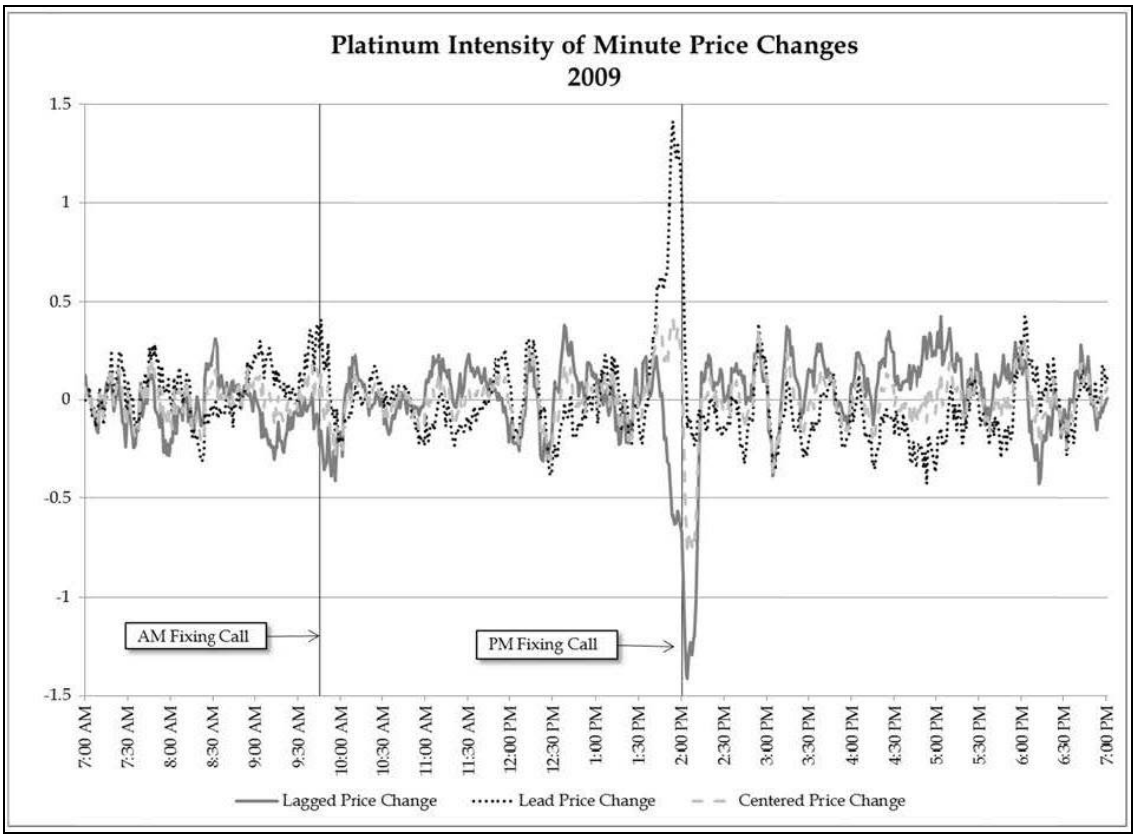


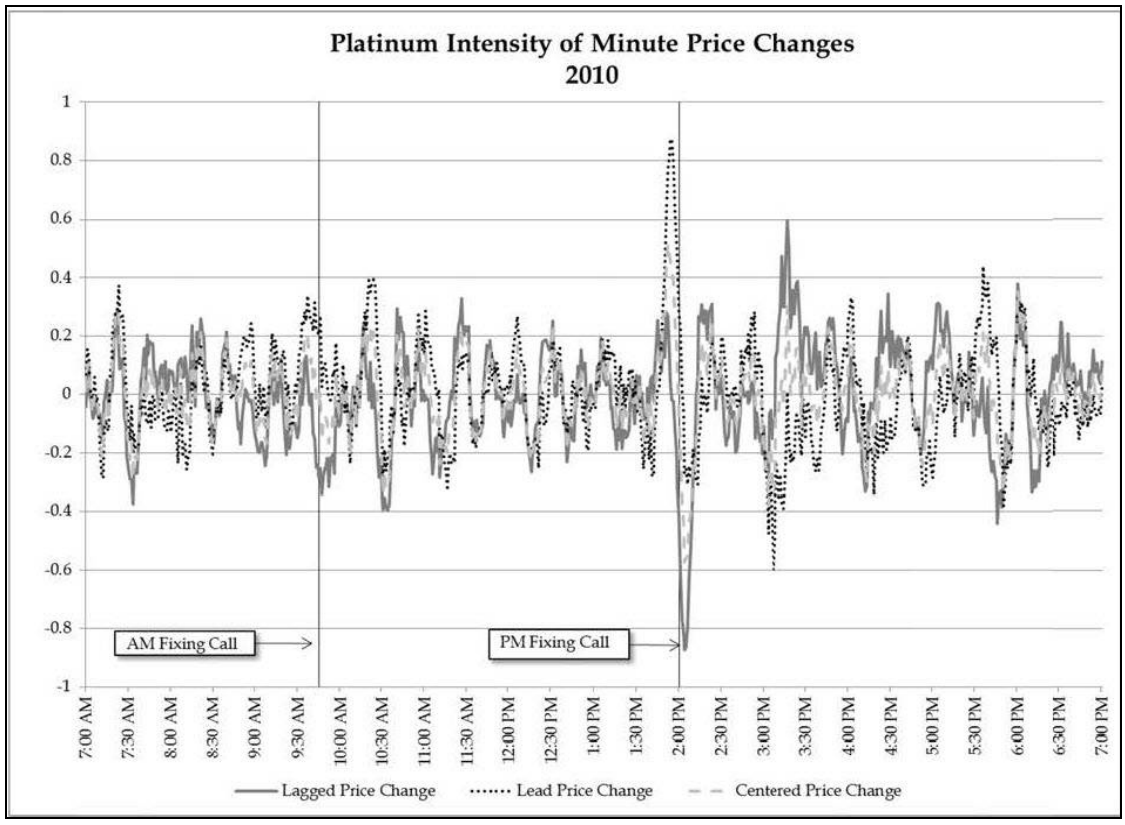
83. That the largest daily price spikes studied above were anomalous in their

clustering around the Fixing is also confirmed by the fact that Plaintiffs' expert consultants measured not just the presence of spikes, but also their *size*.

84. The following charts present analyses tracking the "intensity of price changes" for a sample of years during the class period in which the price at each minute is compared to either the price 10 minutes before (lag), 10 minutes after (lead), or the average of the two (centered). Large spikes in behavior around the PM Fixing are revealed that are not observed at any other time of day.

85. Whether the lagging, leading, or centered prior prices are used as the comparison point, the largest spike is around the time of the PM Fixing. This can be seen by spikes in prices that become larger and more negative at 2:00 p.m. London time, as the vertical line at 2:00 p.m. marking the beginning of the call lies almost exactly on top of the largest negative spike by any of the three measures.




Platinum Intensity of Minute Price Changes
2010
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
AM Fixing Call
PM Fixing Call
7:00 AM
7:30 AM
8:00 AM
8:30 AM
9:00 AM
9:30 AM
10:00 AM
10:30 AM
11:00 AM
11:30 AM
12:00 PM
12:30 PM
1:00 PM
1:30 PM
2:00 PM
2:30 PM
3:00 PM
3:30 PM
4:00 PM
4:30 PM
5:00 PM
5:30 PM
6:00 PM
6:30 PM
7:00 PM
Lagged Price Change
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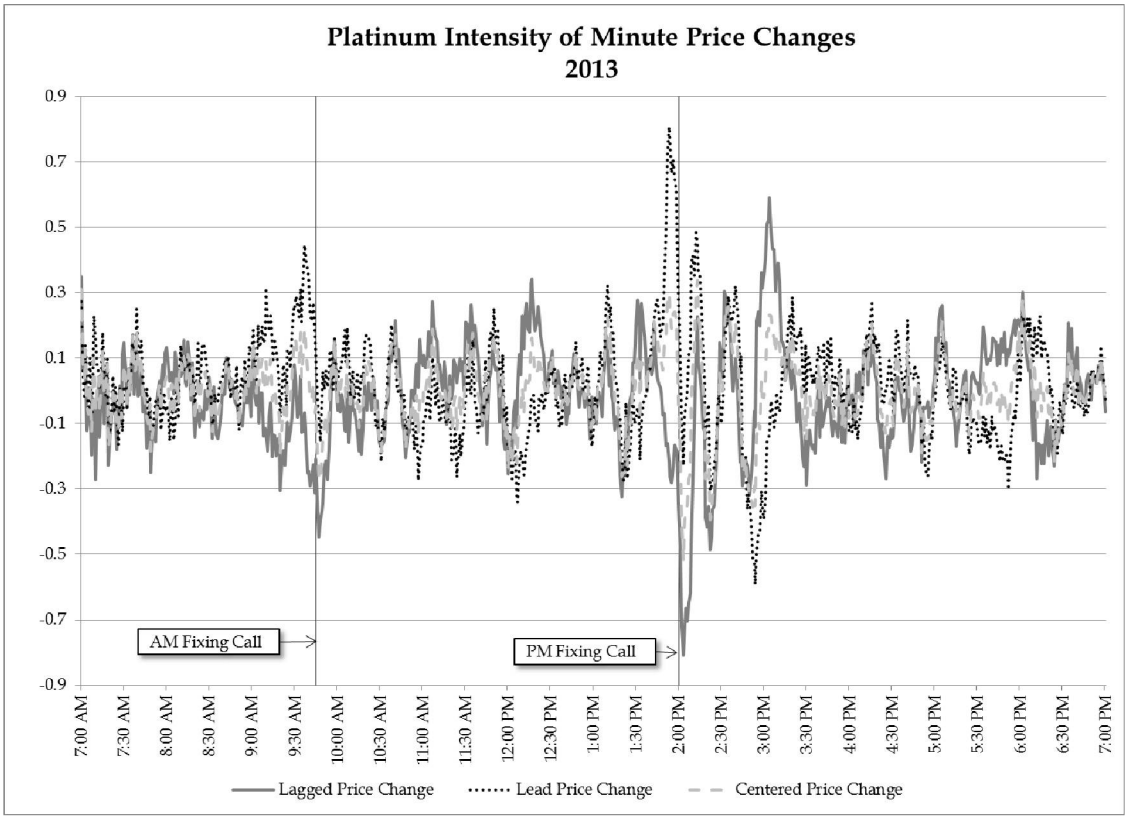
Platinum Intensity of Minute Price Changes
2013
0.9
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
AM Fixing Call
PM Fixing Call
7:00 AM
7:30 AM
8:00 AM
8:30 AM
9:00 AM
9:30 AM
10:00 AM
10:30 AM
11:00 AM
11:30 AM
12:00 PM
12:30 PM
1:00 PM
1:30 PM
2:00 PM
2:30 PM
3:00 PM
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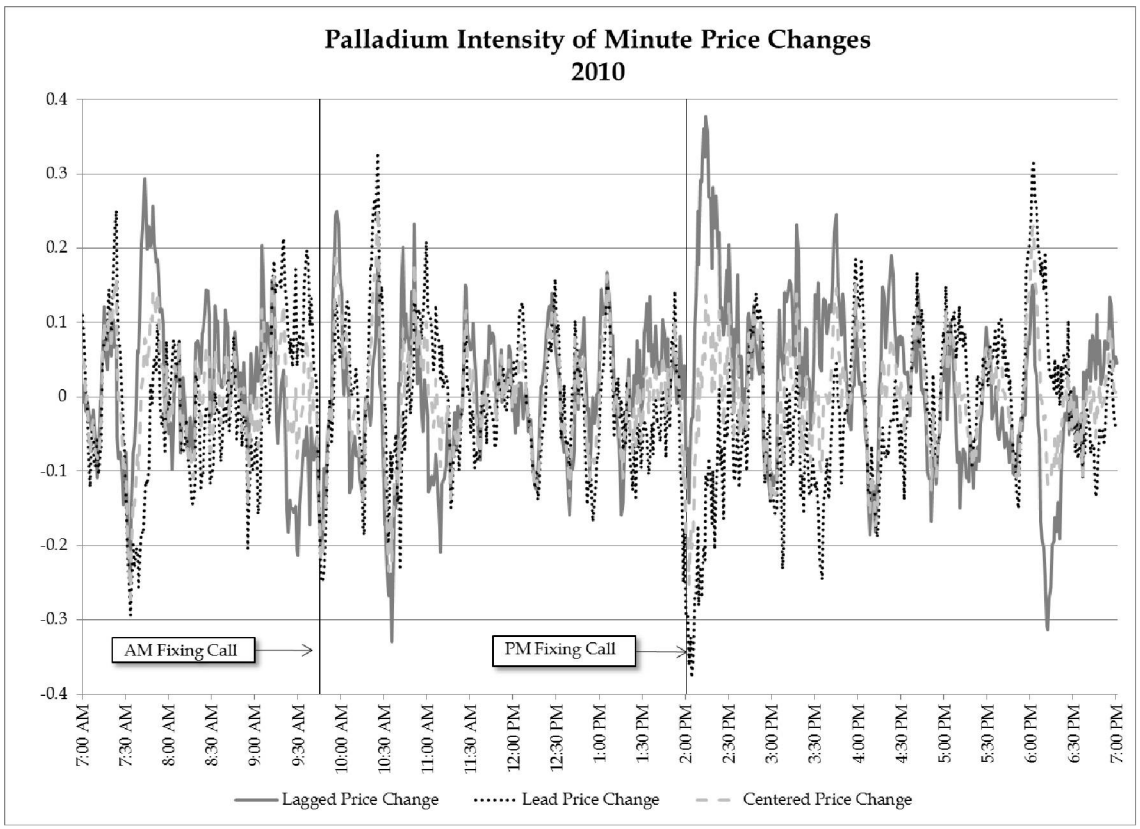
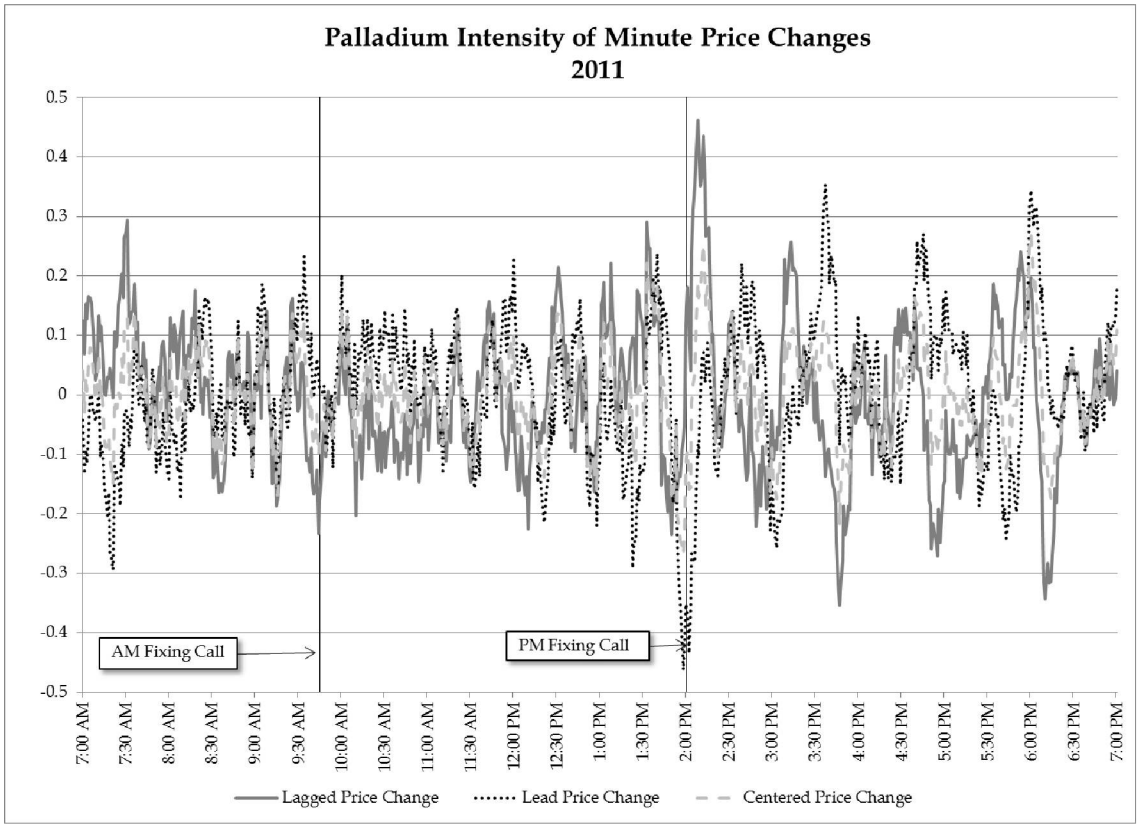
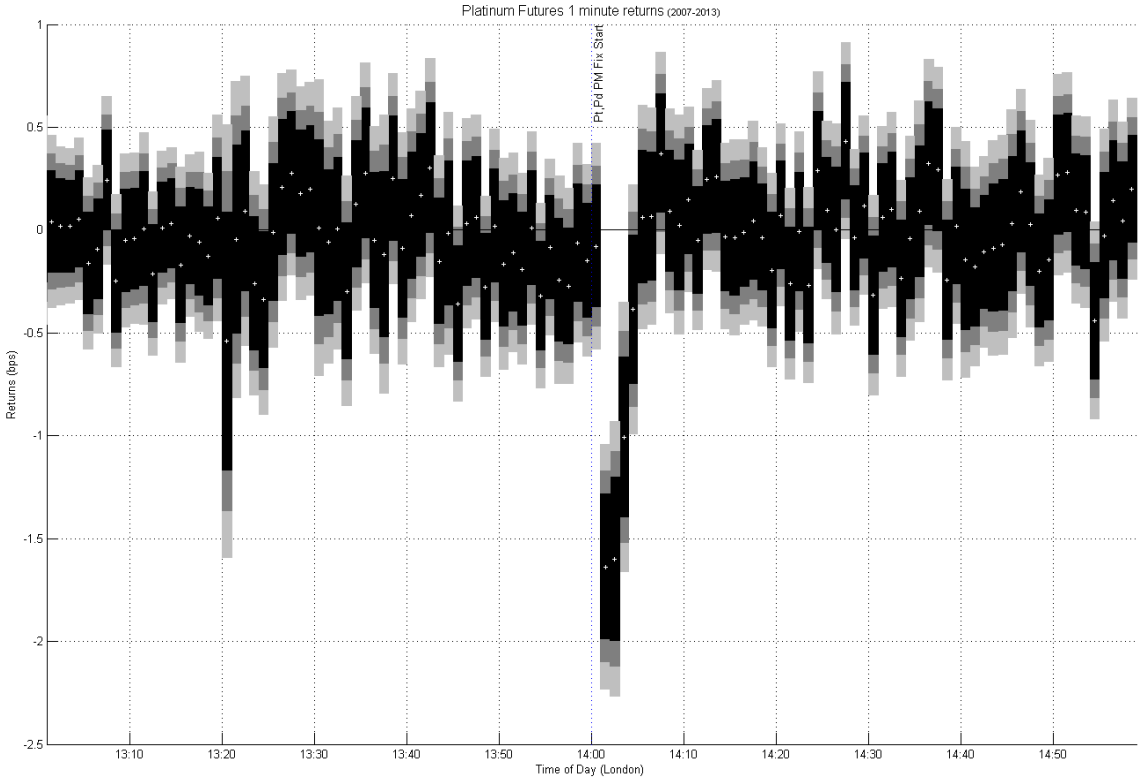

Palladium Intensity of Minute Price Changes
2010
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
AM Fixing Call
PM Fixing Call
7:00 AM
7:30 AM
8:00 AM
8:30 AM
9:00 AM
9:30 AM
10:00 AM
10:30 AM
11:00 AM
11:30 AM
12:00 PM
12:30 PM
1:00 PM
1:30 PM
2:00 PM
2:30 PM
3:00 PM
3:30 PM
4:00 PM
4:30 PM
5:00 PM
5:30 PM
6:00 PM
6:30 PM
7:00 PM
Lagged Price Change
Lead Price Change
Centered Price Change

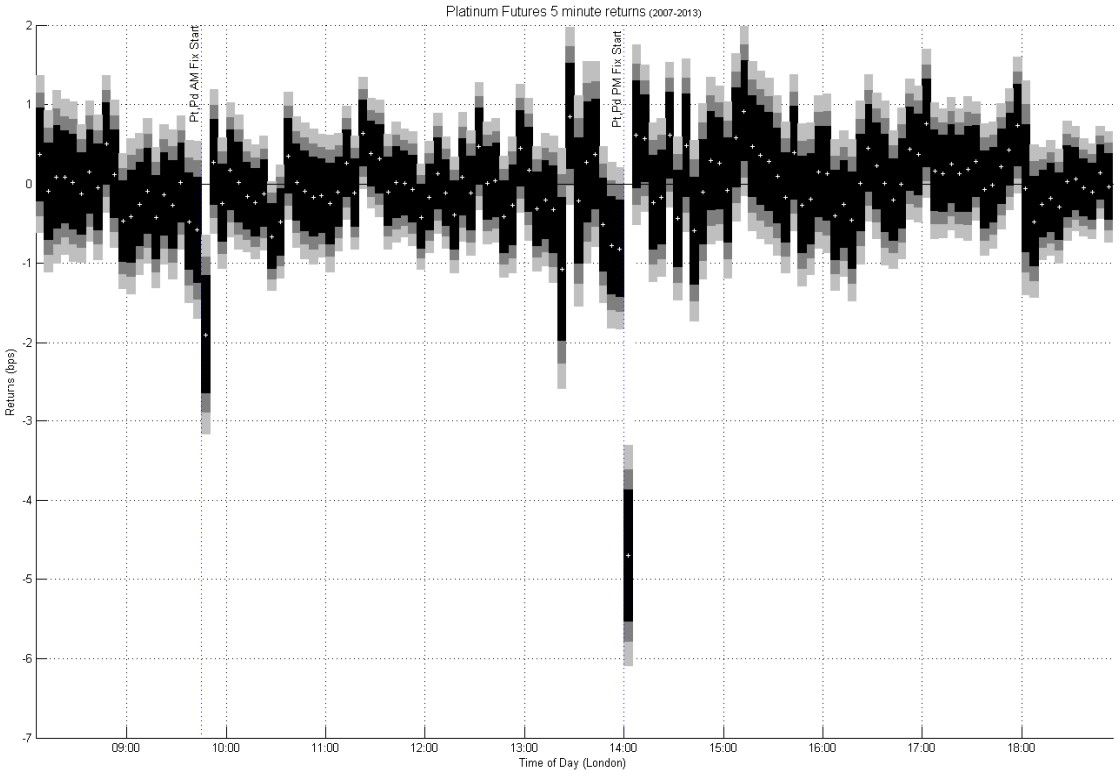

Palladium Intensity of Minute Price Changes
2011
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
AM Fixing Call
PM Fixing Call
7:00 AM
7:30 AM
8:00 AM
8:30 AM
9:00 AM
9:30 AM
10:00 AM
10:30 AM
11:00 AM
11:30 AM
12:00 PM
12:30 PM
1:00 PM
1:30 PM
2:00 PM
2:30 PM
3:00 PM
3:30 PM
4:00 PM
4:30 PM
5:00 PM
5:30 PM
6:00 PM
6:30 PM
7:00 PM
Lagged Price Change
Lead Price Change
Centered Price Change

86. Another way to look at the uniqueness of the anomalies around the PM Fixing is to analyze the average price changes, *i.e.*, the "returns," observed throughout the trade day. The charts below measure such returns, in basis points (*i.e.*, hundredths of a percentage) across 1 and 5 minute intervals throughout the London trade day for years 2007 – 2013. The charts map out in black (95% confidence interval), dark grey (99% confidence interval), and light grey (99.9% confidence interval) the average basis point returns observed.

87. It is *only* around the PM Fixing that prices show statistically significant negative "returns." While prices move up and down throughout the day, only the PM Fixing corresponds to both *consistent* downward movement and the largest downward swing of the day. Further, while the magnitude of -4.6 basis points appears small, this is the average return over just a 5 minute period. To put this into context, from January 2000 to December 2013, Platinum increased from USD442 to USD1358 per ounce, approximately a tripling in value. However, this tripling corresponds to only 2.2 basis point increase *per day* – *i.e.*, less than half the size of the dip witnessed in the *five minutes* following the Fixing.

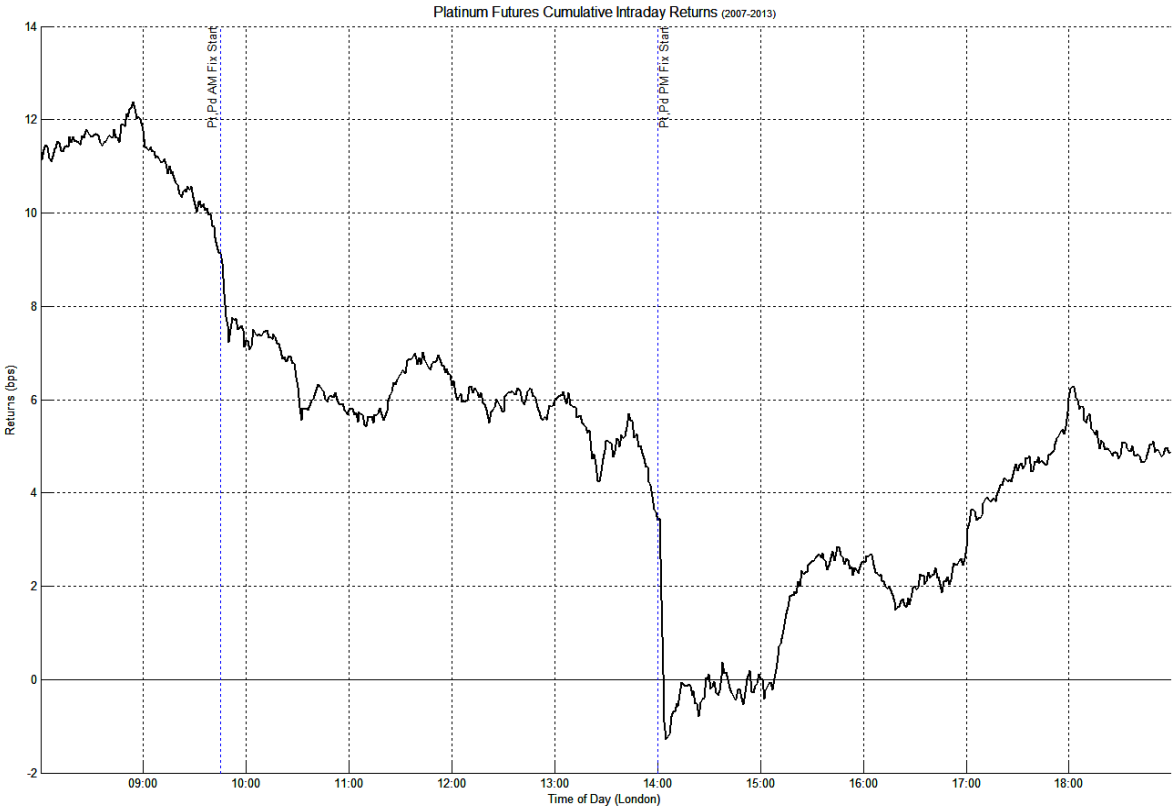
88. The following two graphs show unadjusted returns – the average price changes over 1 or 5 minute intervals through the trade day. These graphs illustrate two key points. First, the *only* time of the day for which there are consistent negative returns is around the Fixing. While information arrives to the market throughout the day and causes the price to move up or down, when averaged such movements essentially cancel out. The statistically significant negative returns at the Fixing are unique because they show a consistent downward bias. Second, the negative returns are largest and most statistically significant immediately following the *start* of the Fixing, and do not correspond to end of the Fixing.

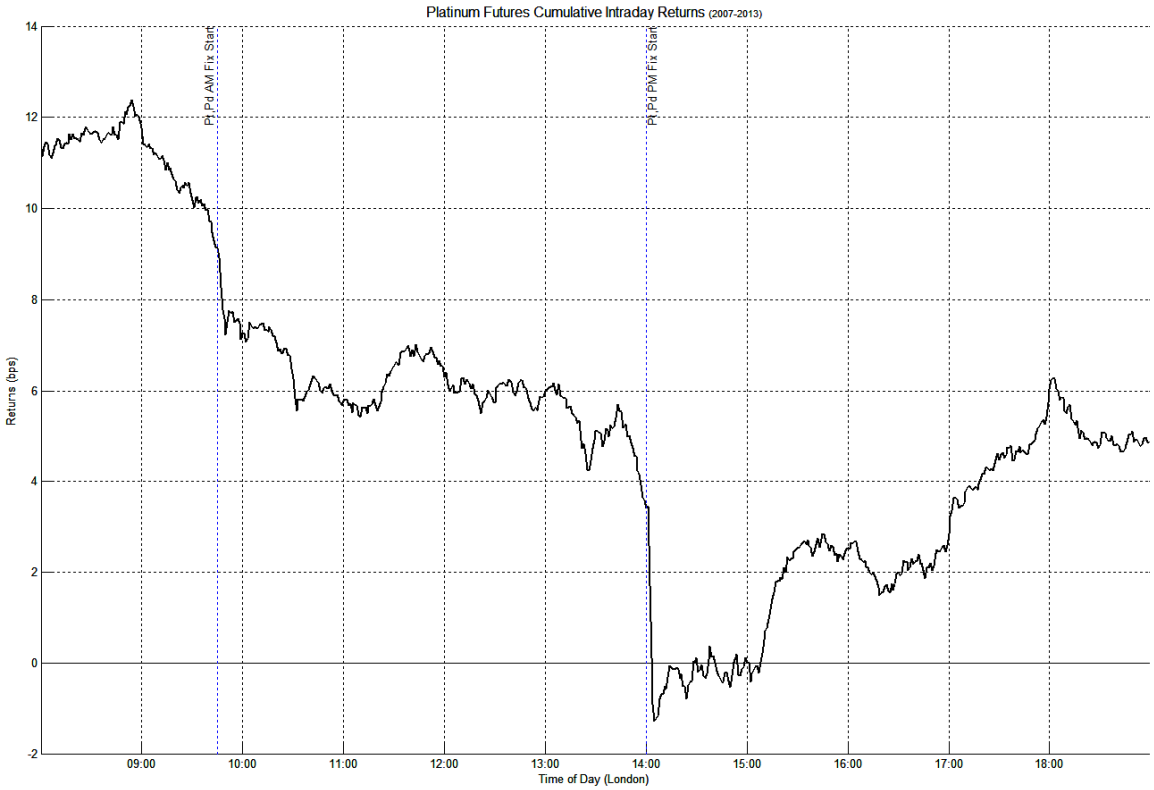




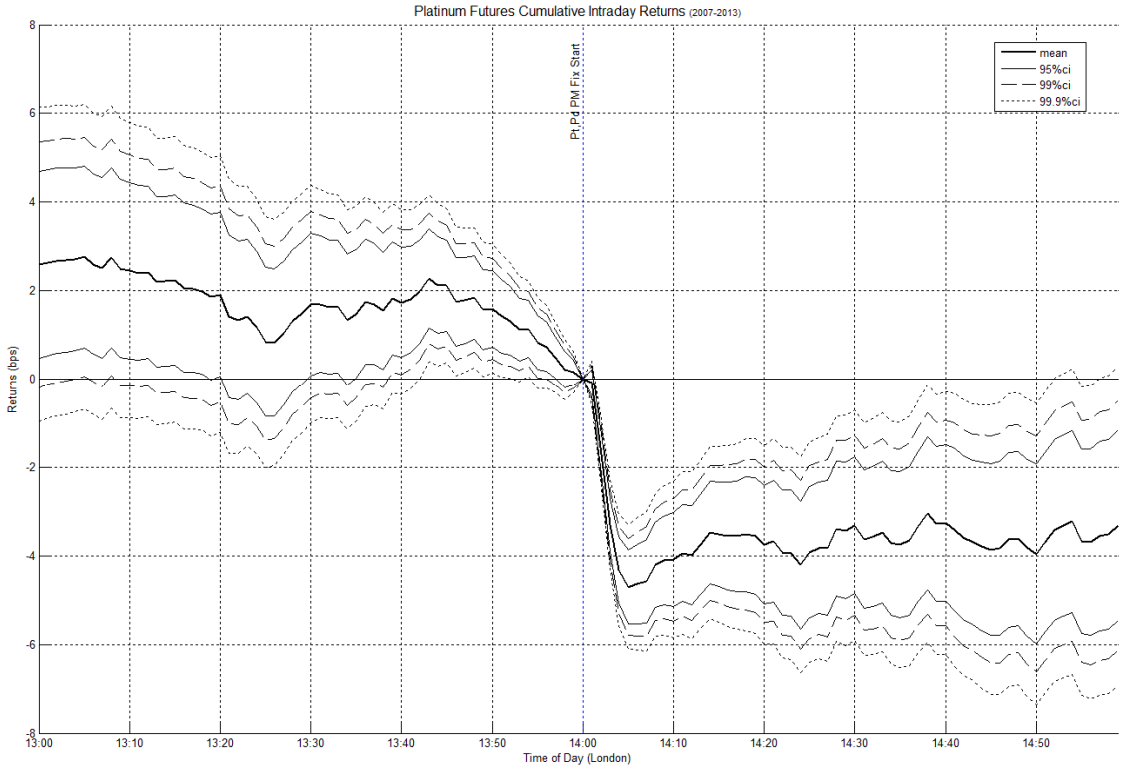
89. The following two unadjusted returns graphs show relative price levels

throughout the day, effectively controlling for comparisons across large periods, over which the price levels have significantly changed (*i.e.*, if platinum traded at $440/oz during some years and over $1,000/oz in other years). By focusing on the *relative* price levels, one can see consistent price changes throughout the day. And these price changes clearly correspond to the start of the Fixing.

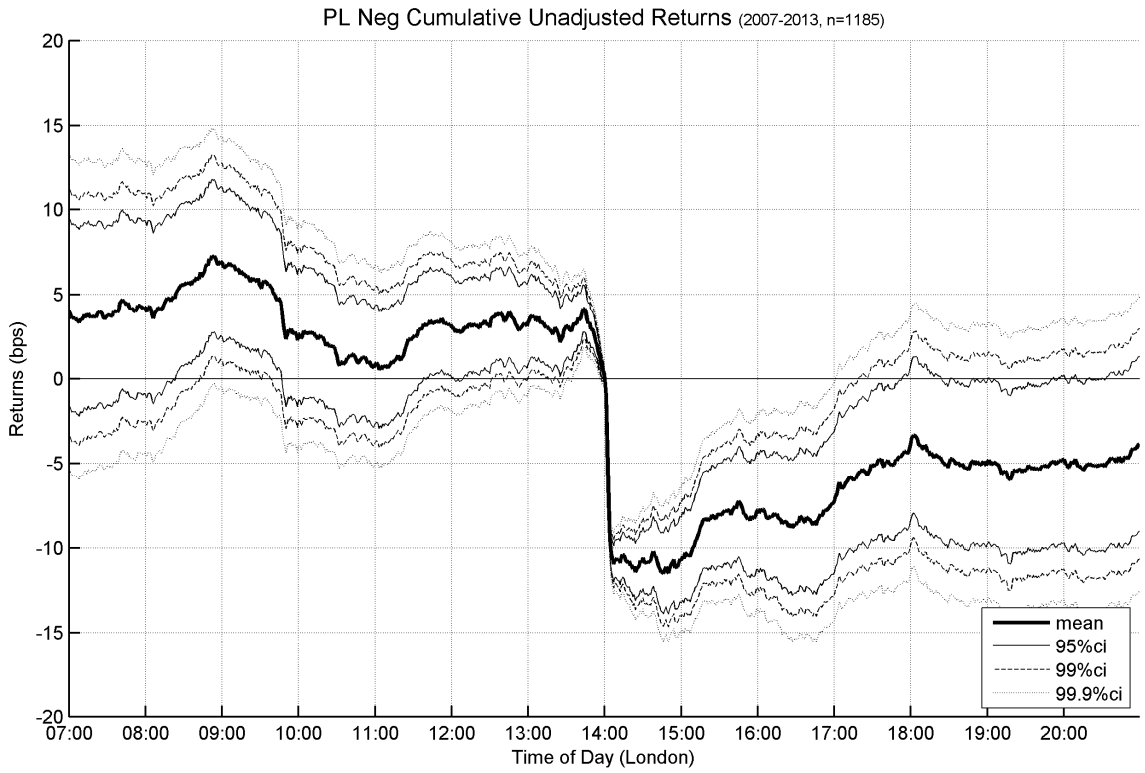




90. The chart below shows cumulative unadjusted returns – that is relative price levels throughout the trade day. The prices are normalized to zero at 2:00 p.m. London time, the start of the Fixing. The solid line shows the average price, relative to this reference point. The mean price of Platinum futures rapidly drop shortly after the start of the London PM Platinum Fixing. The dashed and dotted lines, show the statistical confidence intervals (from 95% to 99.9%) surrounding this average. Combined, these curves show that the average price drop at the Fixing is statistically significant, and cannot be attributable to general market noise. The average drop of 6 basis points in the fifteen minutes around the fix (13:45 to 14:05) is almost ten times that of the average ***daily*** return in platinum of 0.7 bps over the same period (2007 – 2013).



91. While the prior charts shows a consistent downward bias in the price of platinum at the time of the fixing, the averaging process used to generate the curves combines both positive and negative days. This process masks the true impact of a negative price movement from the Fixing. That is, mixing the positive and negative fixings attenuates the impact of negative and positive price responses. To observe the price impact from the negative fixings, it is important to focus on only the days with negative fixings, as illustrated in the charts below. Palladium are characterized by similar significant, negative price movement around the Fixing.



92. The foregoing chart illustrates two important results. First, the size of the price impact for platinum is around 15 bps, twice the size witnessed in the preceding chart which combined positive and negative days. Second, the price impact can be seen to last for several hours. Mean price levels do not recover to the pre-fixing levels for the rest of the trade day, remaining statistically significantly below the pre fix level until 5:00 to 6:00 p.m. London time.

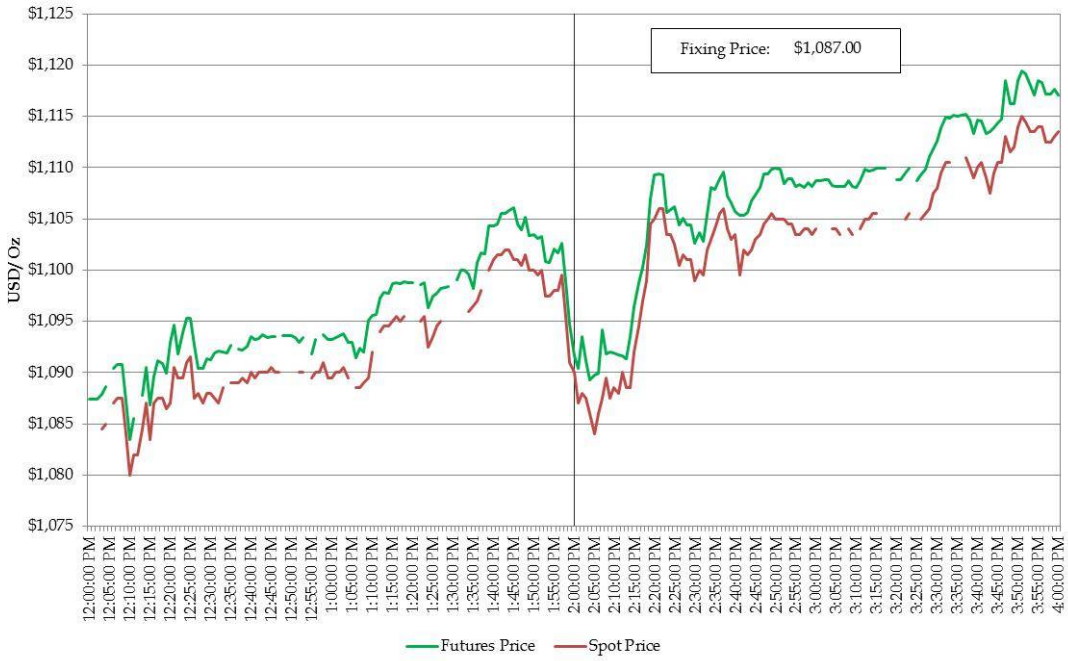
D. Analyses of Specific Days Confirm Abnormal Spikes Around the PM Fixing

93. The studies above considered entire years and each found that prices were more likely to move downward, more quickly and in larger size, around the time of the PM Fixing than at any other time of day. The pattern revealed by using a data set as large as an entire year, and run for multiple years, leaves no doubt that prices around the PM Fixing consistently behaved differently than prices at any other point in the day. Specifically, prices around the PM Fixing were much more likely to move downward, much more quickly, and by a much larger

amount, than at any other time of day.

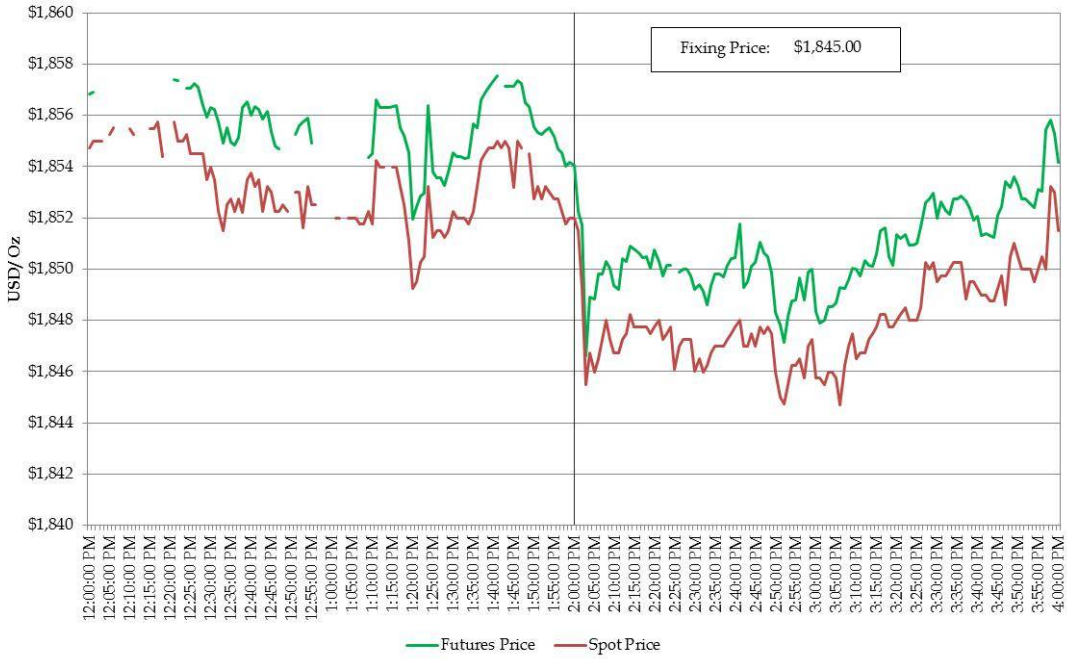
94. An analysis of individual days confirms that, in fact, large downward price movements occurred around the time of the PM Fixing. As seen in the following charts, prices for both platinum and palladium futures and spot platinum and palladium plummeted right around the time of the Fixing. These days were chosen merely as examples to illustrate the point of downward manipulation at the time of the PM Fixing.

March 19, 2009
Platinum Spot and Futures Prices
(Vertical bar represents the start of the London Fixing call)



August 31, 2011
Platinum Spot and Futures Prices

(Vertical bar represents the start of the London Fixing call)



June 7, 2013
Platinum Spot and Futures Prices

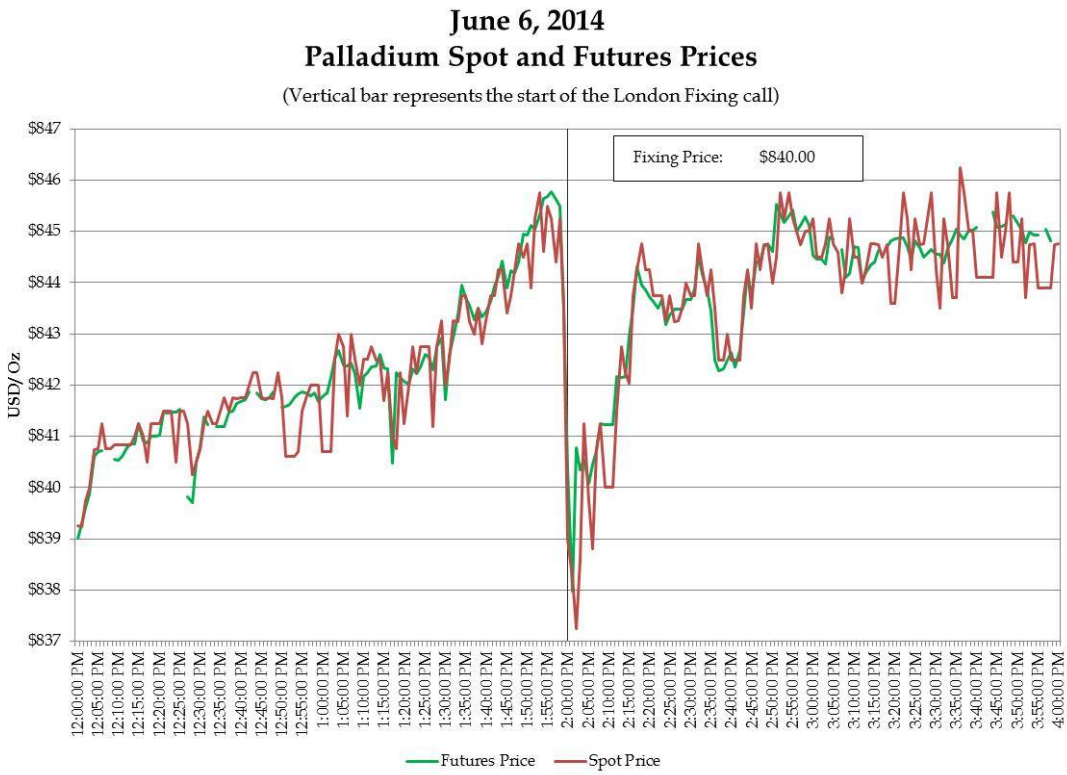
(Vertical bar represents the start of the London Fixing call)

August 26, 2010
Palladium Spot and Futures Prices

(Vertical bar represents the start of the London Fixing call)

March 26, 2012
Palladium Spot and Futures Prices

(Vertical bar represents the start of the London Fixing call)



95. Individual days are characterized by the same patterns that exist in the aggregate data. Downward movements begin either just before the call initiates or immediately thereafter, and then accelerate. That the downward movement often occurs before the call begins confirms it cannot be the result of the market learning anything from the Fixing. Rather, these movements can only be the result of collusive and manipulating trading techniques employed by Defendants to create downward pressure in the market and thus distort the prices used during the Fixing.

96. In line with the studies discussed above, Plaintiffs' expert consultants have been able to preliminarily identify numerous days throughout the Class Period on which Defendants conspired to and did manipulate the PM Fixing, and thereby set the price of platinum and palladium at artificially low levels. These days are set out in Appendices A and B for platinum and palladium respectively. The list of days presented in Appendices A and B were identified by several mutually-reinforcing methodologies employed by Plaintiffs' economists. In general, the

experts screened for days where market behavior around the PM Fixing was significantly different from that in other times during that same day. The experts employed the following methodologies for both platinum and palladium.

97. *First*, the expert consultants flagged days for which the PM Fix is among the 5%, 10, 20 or 30% lowest spot prices within the same day. Comparing prices within a given day has the advantage of controlling for the general trend in prices over time and for events which would have moved all prices on that day up or down relative to other days.

98. *Second*, the experts calculated the magnitude of price changes by comparing the spot price at 2:00 p.m. to prices within 30 minutes of 2:00 p.m. The same statistics for every other reference minute of the day, providing a distribution of the changes against which each minute can be evaluated for possibly being an outlier. When the price at a particular minute is very different from its neighboring benchmark price, the difference between the two will be large. If the reference price is much lower than the benchmark neighbor price, then that difference is negative, and when it is higher, the difference is positive. A day was flagged when the largest price drop of the day occurred within plus or minus 30 minutes of 2:00 p.m.

99. *Third*, the experts compared the spot price at 2:00 p.m. to the same day's PM Fix value and computed the amount prices decreased from the start of the Fixing call. The daily price declines for each year were compared to generate a distribution of the price declines. From this distribution, days having the largest 20% of price declines in the given year were flagged as anomalous.

III. THERE IS NO INNOCENT EXPLANATION FOR THE ABNORMALITIES SEEN IN THE PRICING DATA SURROUNDING THE FIXINGS

A. If the Fixing Was Causing Spikes Because of the Release of New Information, the Spikes Would Occur in Both Directions

100. Plaintiffs' expert consultants considered whether there were large price

movements around the time of the Fixings merely because the Fixings represent the release of new information into the market. As an initial matter, this explanation fails to account for the fact that the prices often began to move *before* the Fixings began. Defendants (and their co-conspirators) were the only market participants that could accurately predict, and thus confidently trade as to profit off of, the Fix prices before the Fixing even began.

101. More basically, if the Fixings were causing spikes merely because they represented new information to the market – *i.e.*, the spikes were the result of legitimate price discovery rather than artificial manipulation – over a multi-year period one would expect the resulting "spikes" to occur relatively equally in both directions. The new information released to the market around the Fixing should, over so many days, be information indicating prices should go up as often as information indicating prices should go down.

102. But that is not what happened. Over a sufficiently long time horizon, the Fix prices should fall below the median price for that day 50% of the time, and above the median price for that day 50% of the time. But, as seen above, the Fix price was "low" far more often than it was "high."

103. To isolate this further, Plaintiffs' expert consultants analyzed instances where the Fix prices were *very* high or *very* low. Again, if the Fixings were causing price spikes because they represented new information to the market, then the Fixing would have an equal chance of falling into the very low outliers of prices for the day as it does falling into the very high outliers. Over such a multi-year period as studied here – particularly when in many years the overall trend in platinum and palladium prices was up – there is no reason to believe the Fixing released consistently unexpected "bad" news more often than it released unexpected "good" news.

104. If the spikes around the Fixings were the market's natural reaction to the release

of new information, one would see the Fix prices fall below the (low) 5th percentile of prices for that day as often as above the (high) 95th percentile. So, too, one would expect PM Fix prices to fall below the (low) 10th percentile as often as above the (high) 90th percentile.

105. To the contrary, in every year studied, Fix prices were *far* more likely to be in the very lowest range of the day's prices, than in the highest.

106. The following chart compares the number of times the PM Fix prices fell below the 5th percentile to what should have been the relatively equal number of times the PM Fix prices fell above the 95th percentile. The distributions at the extreme percentiles are far from equal. For instance, the PM Fix prices were below the 5th percentile twice as often as one would expect if prices were evenly distributed throughout the day.

107. This confirms that the PM Fixing was not causing spikes *as a general matter,* but instead was causing *downward spikes, specifically*, and at a frequency far *beyond* what would be expected if prices were just reacting naturally to new information made available during the PM Fixing. In addition, it confirms that the PM Fixing was also causing upward spikes at a frequency far below what would be expected if those prices were just reacting to the new information made available during the PM Fixing. Not only are these results beyond what would be expected if the PM Fixing were releasing "good" and "bad" news equally often – which, again, is a reasonable presumption given the long time horizon studied – but the results are so disproportionately in favor of downward spikes that it is statistically impossible that they occurred by random chance.

Ranking Daily Percentile for the PM Platinum Fix Price (Top and Bottom 5%)

Year	Number of Days [A]	% of Days With Percentile Rank Less Than 5% [B]	% of Days With Percentile Rank Greater Than 95% [C]	Difference [D] = [B] - [C]
2008	252	6.7%	4.0%	2.8%
2009	251	12.0%	2.0%	10.0%
2010	251	6.0%	2.4%	3.6%
2011	249	8.0%	1.6%	6.4%
2012	250	6.8%	1.2%	5.6%
2013	251	7.6%	0.8%	6.8%

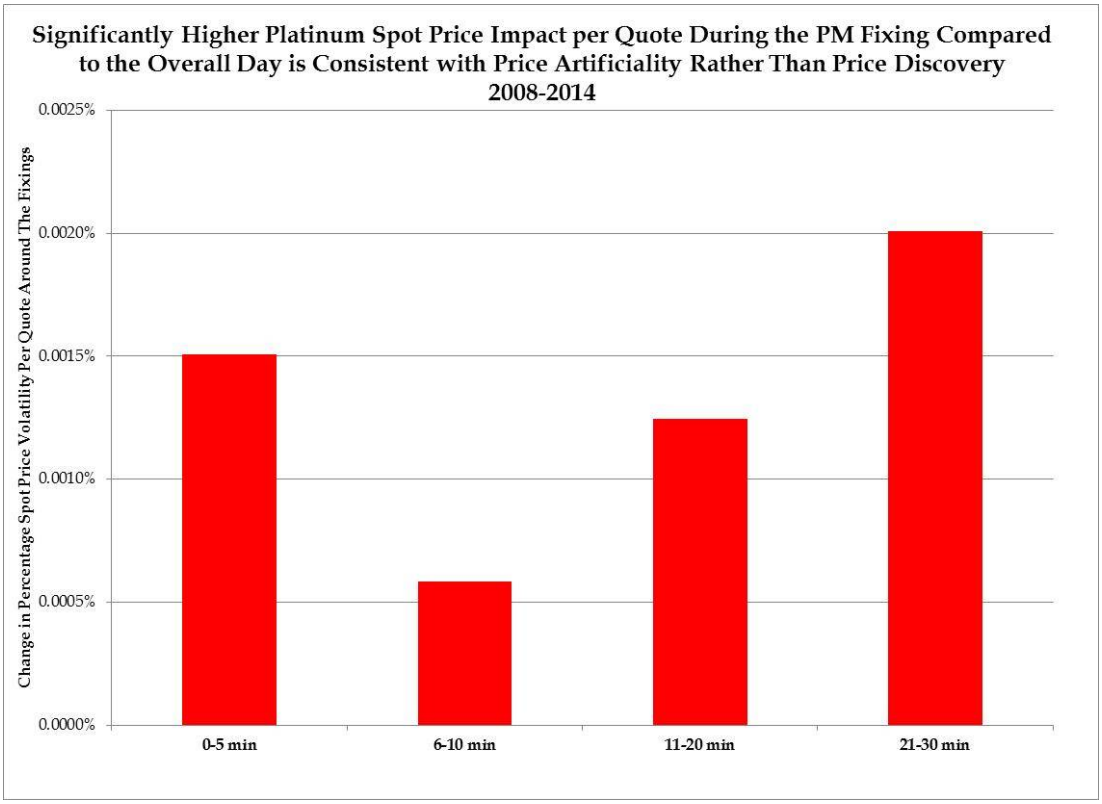
B. Price Movements Around the PM Fixings Are Not Consistent With Price Discovery

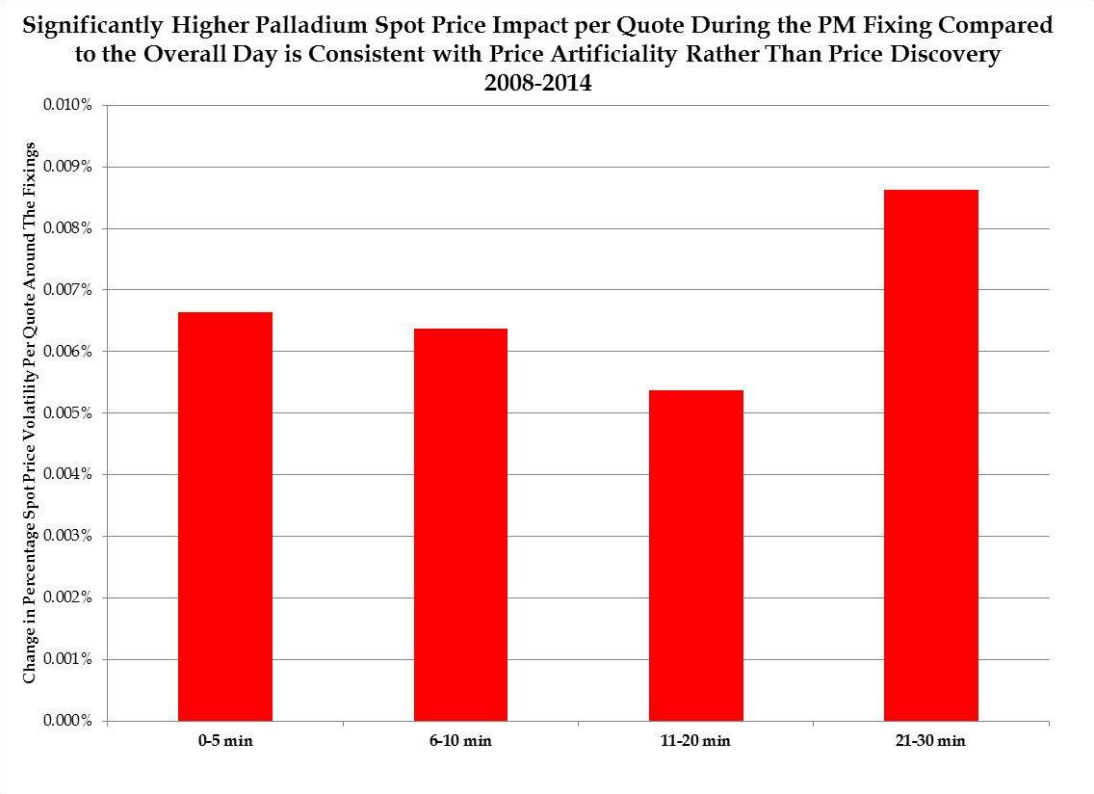
108. In a liquid market, a greater volume of trades generally results in a lower ability of each trade or unit of volume to affect price. Economists commonly refer to how much a price moves in response to a trade or volume traded as "price impact." In the platinum and palladium spot markets, an especially liquid time of day would be during the PM Fixing because large volumes are traded then.

109. As liquidity increases in a non-manipulated market, each trade or unit of volume should have a lesser ability to affect or move prices. Very large price impact per quote during very active trading times of the day is evidence of price artificiality rather than normal price discovery.

110. The next graphs show the price impact of a quote during the minutes immediately following the start of the PM Fixing when compared to the average price impact throughout the rest of the day. For the minutes immediately following the start of the PM Fixing (0-5, 6-10, 11-20, and 21-30 minutes after 2:00pm) the price impact of a quote is much higher than throughout the rest of the day, the opposite of what one would expect given that the PM Fixing is an especially liquid time for the platinum and palladium spot markets.

111. Despite the fact that the period around the PM Fixing is one of the most liquid times of the day for platinum and palladium trading, the price impact per quote submitted following the start of the PM Fixing is significantly larger than throughout the rest of the day. This result is consistent with the PM Fix prices being artificial due to Defendants' manipulative conduct during and around the time of the PM Fixing, and is inconsistent with normal price discovery.





IV. THE PRICE MOVEMENTS AROUND THE PM FIXING WERE THE RESULT OF DEFENDANTS' MANIPULATIONS

112. As discussed previously, pricing data indicates highly unusual behaviors around the PM Fixings. The movements revealed by the data defy innocent explanation. Indeed, they are the result of Defendants' manipulation of platinum and palladium prices for their own profit.

A. The "Tools of the (Manipulation) Trade" Are Well Known to Defendants

113. As previously noted and expanded upon below, Switzerland's financial regulator FINMA has found "serious misconduct" by UBS in precious metal trading.[18] Indeed, FINMA's chief executive officer recently stated that the regulator has "seen clear attempts to manipulate

[18] FINMA, Press Release: FINMA sanctions foreign exchange manipulation at UBS (Nov. 12, 2014), www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

fixes in the precious metals markets."[19] Barclays has entered into a settlement with the U.K. Financial Conduct Authority arising out of manipulation in the precious metals context. Defendants' tools of manipulation were laid bare by these investigations, as well as by related investigations into similar conduct in connection with other benchmark litigation.

114. For instance, the CFTC found that Defendant HSBC, as well as other platinum and palladium industry participants such as UBS, Citibank, JPMorgan, and Royal Bank of Scotland, actively colluded to manipulate the price of Forex benchmarks. This manipulation resulted in the CFTC's imposing fines in excess of $1.4 billion dollars on the five banks. The U.K.'s Financial Conduct Authority imposed a further £1.1 billion in fines on the same five banks in respect of the same manipulation in the U.K.[20] Defendant Barclays is reported to have avoided similar findings and fines only because it opted out of settlement talks "at the last minute."[21] As discussed below, many of the techniques used there were employed here as well.[22]

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[19] Nicholas Larkin and Elena Logutenkova, *UBS Precious Metals Misconduct Found by Finma in FX Probe*, Bloomberg (Nov. 12, 2014), www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html.

[20] U.K. Financial Conduct Authority, *Final Notice to HSBC Bank plc* (Nov. 11, 2014), at 3, www.fca.org.uk/your-fca/documents/final-notices/2014/hsbc-bank-plc. *See also* U.K. Financial Conduct Authority, *Final Notice to UBS AG* (Nov. 11, 2014); U.K. Financial Conduct Authority, *Final Notice to Citibank, N.A.* (Nov. 11, 2014); U.K. Financial Conduct Authority, *Final Notice to The Royal Bank of Scotland plc* (Nov. 11, 2014). In most cases, these fines were reduced by 30% for early cooperation.

[21] *See* Margot Patrick and Max Colchester, *Barclays Pulls Out of Forex Settlement Amid New York Complications*, The Wall Street Journal (Nov. 12, 2014), http://online.wsj.com/articles/barclays-pulls-out-of-forex-settlement-amid-new-york-complications-1415792606.

[22] An FCA video explaining HSBC's Forex manipulation is available at http://play.buto.tv/HcMF6. The CFTC has also released multiple examples of trader misconduct in private chat rooms by which Forex-trading banks – including Defendant HSBC – were able to profit from manipulation of currency benchmarks. *See* Commodity Futures Trading Commission, Examples of Misconduct in Private Chat Rooms, www.cftc.gov/ucm/groups/public/@newsroom/documents/file/hsbcmisconduct111114.pdf.

115. *First*, the Defendants met twice daily on a private phone call to discuss what the price of platinum and palladium should be on that day. These calls involved the direct exchange of intended or future price information among horizontal competitors. This information exchange took place among a small group of competitors with large market shares in the market for platinum and palladium (in both physical form and derivative products). The banks' communications with each other – such as the sharing of client orders and imminent orders – were undisclosed, meaning Defendants had access to nonpublic, real-time information about changes in the price of platinum and palladium. Defendants also had a direct financial interest in the outcome of the Fixing, as they trade platinum and palladium on the spot market and during the Class Period they had large short futures positions on NYMEX. The structure of the Fixing means that Defendants are easily able to detect – and if necessary, retaliate against – defectors: all Defendants will know if any other Defendant attempts to "break the cartel" because all Defendants are aware of the net demand represented by other Defendants during the Fixing. Until recently, the Fixing was, by design, subject to no external monitoring or oversight, let alone by an independent entity. The foregoing features are striking red flags of potential corruption and abuse; it is no accident that their cumulative presence is unheard of and would not be tolerated in other industries.

116. *Second*, Defendants used chat rooms, instant messages, phone calls, proprietary trading venues and platforms, and e-mails to coordinate among themselves (and likely other bullion banks) to ensure members of attempts to move the market in one way or the other were not undone (unwittingly or not) by the contrary efforts of other members or other large banks. In the context of currency manipulation, the CFTC found that Defendant HSBC, as well as other

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These videos and other documentation detail how the concepts of "netting," "taking out the trash," "building," and "giving ammo" were routinely deployed in the Forex arena.

precious metals industry participants such as UBS, Citibank, JPMorgan, and Royal Bank of Scotland, "used private electronic chat rooms to communicate and plan their attempts to manipulate the Forex benchmark prices for certain currency pairs."[23] With respect to precious metals, FINMA found that "just as in foreign exchange trading," evidence showed that the banks shared information on their client orders, and information about expected future orders, with third parties (*i.e.*, other banks).[24]

117. *Third*, with information in hand and a decision made to move in a particular direction, the colluding banks would equip each other with the tools to do so. In the currency context, where one of the five above-mentioned banks had a contrary book of orders, those orders would be "netted off" with third parties in order to reduce the number of adverse orders that were to be processed during the pivotal measurement window – a process referred to as "taking out the filth" or "clearing the decks."[25]

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[23] U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of HSBC Bank plc* (Nov. 11, 2014), at 2, www.cftc.gov/ucm/groups/public/@lrenforcementactions /documents/legalpleading/enfhsbcorder111114.pdf. *See also* U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of UBS AG* (Nov. 11, 2014), at 2; U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of Citibank, N.A.* (Nov. 11, 2014), at 2; U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of JPMorgan Chase Bank, N.A.* (Nov. 11, 2014), at 2; U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of The Royal Bank of Scotland, pls* (Nov. 11, 2014), at 2.

[24] FINMA, *Foreign exchange trading at UBS AG: investigation conducted by FINMA – Report* (Nov. 12, 2014), www.finma.ch/e/aktuell/Documents/ubs-fx-bericht-20141112-e.pdf.

[25] *See* U.K. Financial Conduct Authority, *Final Notice to HSBC Bank plc* (Nov. 11, 2014), at 16.

118. When the banks had orders going in the same direction, they would "build" the orders by transferring them between other conspirators – a process referred to as "giving you the ammo." That way one bank could more easily control the process of ensuring the trades had the maximum effect at just the right time. Again, the CFTC found that the above-mentioned banks – including defendant HSBC – repeatedly engaged in such behavior to manipulate Forex benchmarks, including that they "altered [their] trading positions to accommodate the interests of the collective group, and agreed on trading strategies as part of an effort by the group to attempt to manipulate [downward] certain FX benchmark rates."[26]

119. The precious metals (including platinum and palladium) and Forex markets, their benchmarks (including the susceptibility of those benchmarks to manipulation), and Defendants' respective trading desks were closely related. Indeed, in the case of UBS's 2013 manipulation of the Forex and precious metals market, FINMA found that "[t]he PM spot desk responsible for the bank's precious metals trading has been an organizational unit of the bank's Foreign Exchange Spot Desk since the end of 2008."[27] It is no surprise then, that the tools of manipulation now proven to have been used by the banks – including Defendant HSBC – to manipulate the Forex markets were also used to manipulate the PM Fixings.

120. *Fourth*, even if Defendants (and their co-conspirators) did not have enough "ammo" to move the market, they would invent it. This has been called "painting the screen" – placing orders to give the illusion of activity, with the intention they would be cancelled later after the pivotal measuring window was closed. Barclays has entered into settlements arising out of similar conduct in the context of gold.

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[26] *Id.* at 17.

[27] Foreign Exchange Trading at UBS AG: Investigation Conducted by FINMA (Nov. 12, 2014), at 12 (translation from German), *available (in German) at* www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

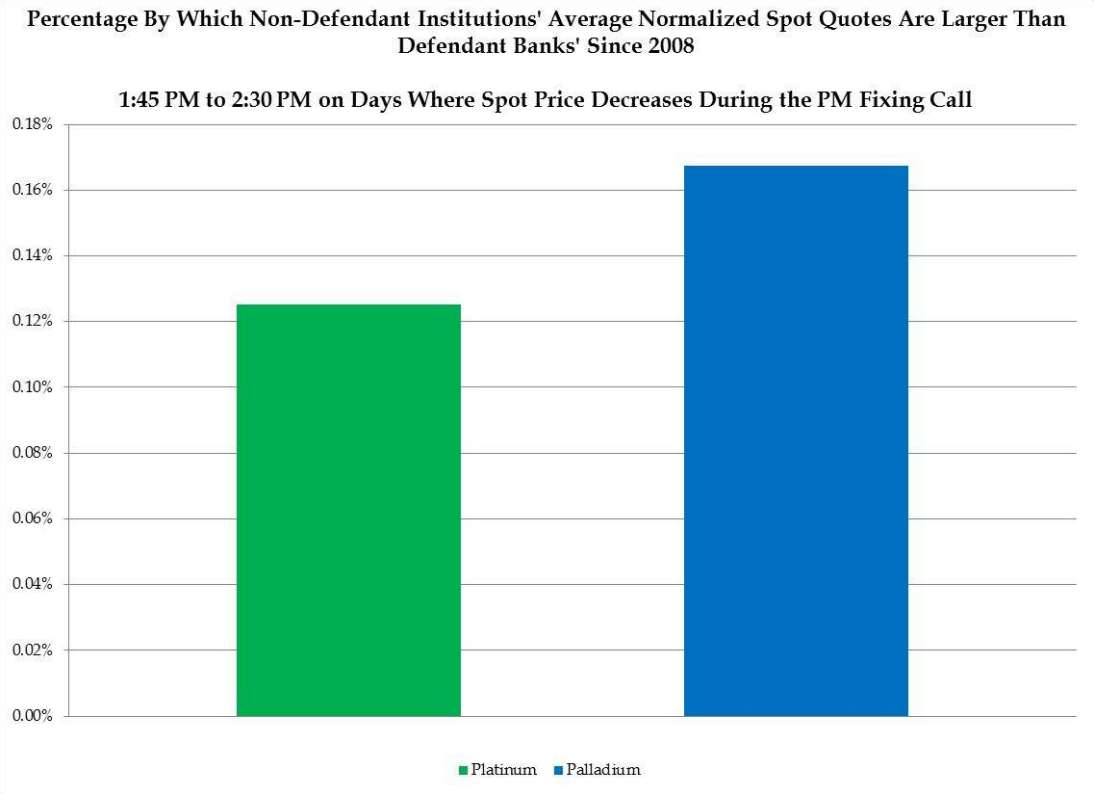
121. *Fifth*, this manipulative behavior was even easier here than in the context of the Forex markets because Defendants had another layer of control by way of the purported Fixing "auction" itself. Defendants could coordinate trading activities prior to the Fixing window so as to cause prices to move in the desired direction – making it easier to achieve the desired result during the "auction."

122. But, at the end of the day, Defendants could also just place "auction" bids and quotes at prices during the PM Fixing regardless of what the true aggregate demands were that had been funneled to them or were on their order books – that is, they could still act to set the Fix prices where they wanted (particularly when acting in concert) even if their clients did not take the bait with respect to the manipulative trading practices occurring just prior to and during the Fixing process. Rather than participating in good faith, Defendants could simply submit aggregate "auction" "bids" that understated demand, particularly where doing so benefitted each bank's own proprietary positions even as it harmed the bank's clients.

B. Defendants' Manipulative Activities Impacted the Purported "Auction" Process

123. Evidence of Defendants and their co-conspirators' collusive behavior intended to downwardly manipulate prices ahead of the Fixing can be seen by comparing Defendants' quotes for platinum and palladium shortly before the Fixing with simultaneous quotes from non-Defendants acting in the same market.

124. As the following graphs show, on those days when the price of platinum and palladium declined shortly before the PM Fixing, non-Defendant participants were quoting significantly higher prices for platinum and palladium than Defendants.



125. These data effectively show that, on the days where the prices of platinum and palladium decreased in the window leading up to and during the PM Fixing, this was at least in part caused by Defendants' offering lower quotes for those metals than non-Defendants in the same market during that time.

C. Defendants Were Motivated to Manipulate the Markets for Platinum and Palladium Due to Their Large "Short" Positions

126. Since at least 2008 until at least late 2014, Defendants (and co-conspirators) jointly manipulated the PM Fixing in order to profit from the purchase of platinum and palladium on the spot markets and their short positions on the platinum and palladium futures markets. Defendants sought to avoid the uncertainties and risks associated with platinum and palladium trading and the associated derivatives markets – *i.e.*, that the market will move against a Defendant's position – by collectively agreeing to manipulate the PM Fixing through repeated conduct to suppress the price of platinum and palladium artificially.

127. Defendants trade in the physical platinum and palladium markets and in the markets for platinum and palladium derivatives on their own behalf.

128. Defendant BASF Metals trades physical platinum and palladium as well as platinum and palladium derivatives and notes that it is "a full service provider of precious metal products and services, leveraging unparalleled market insight and decades of precious metals sourcing, trading and hedging expertise to create a tangible competitive advantage for BASF and its customers."[28]

129. Defendant Goldman Sachs has a precious metals trading desk and engages in millions of dollars of platinum and palladium physical and derivatives trades each year.[29]

130. Defendant HSBC has a specialized team that only deals in precious metals and its precious metals trading desks are open for business 24 hours a day.[30] HSBC advertises its unique "supply-side" and "market-demand" intelligence and notes that, "[n]o other firm can match the scope of our involvement in the world's gold, silver, platinum and palladium markets" and that it is "integral to the precious metals market."[31] HSBC further states that, "Our in-depth knowledge and core-involvement in every stage of the precious metals value chain gives us an edge, and our investors an advantage."[32] HSBC engages in millions of dollars of platinum and palladium physical and derivatives trades each year.[33]

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[28] BASF website, www.catalysts.basf.com/p02/USWeb-Internet/en_GB/content/microsites/catalysts/news/news188.

[29] *See* Goldman Sachs 2014 10-k at 40, 129, 130, 142-43.

[30] HSBC Precious Metals Brochure at 7, 10, www.hsbcnet.com/gbm/attachments/products-services/trading-sales/precious-metals.pdf.

[31] *Id.* at 2; HSBC website, www.hsbcnet.com/gbm/products-services/trading-sales/metals.

[32] HSBC website, www.hsbcnet.com/gbm/products-services/trading-sales/metals.

[33] HSBC 2014 10-k at 65, 150.

131. Defendant Standard Bank has a commodities trading desk and holds millions of dollars worth of precious metals.[34] Standard Bank operates a platinum and a palladium ETF.[35] Standard Bank also engages in millions of dollars of platinum and palladium physical and derivatives trades each year.[36]

132. It is impossible prior to discovery to quantify each individual Defendant's short positions in the futures and over-the-counter markets because neither they nor the CFTC publish this data, but on information and belief, each Defendant had a significant net short platinum and palladium position during all or most of the Class Period. Utilizing data from CFTC reports, the following chart shows (the thick red line) that when the banks' calls, puts, and net futures are combined, the banks overall were net "short" through the majority of the Class Period based on their positions in exchange-traded platinum and palladium futures and options – *i.e.*, they had an interest in suppressing the price of platinum and palladium.[37]

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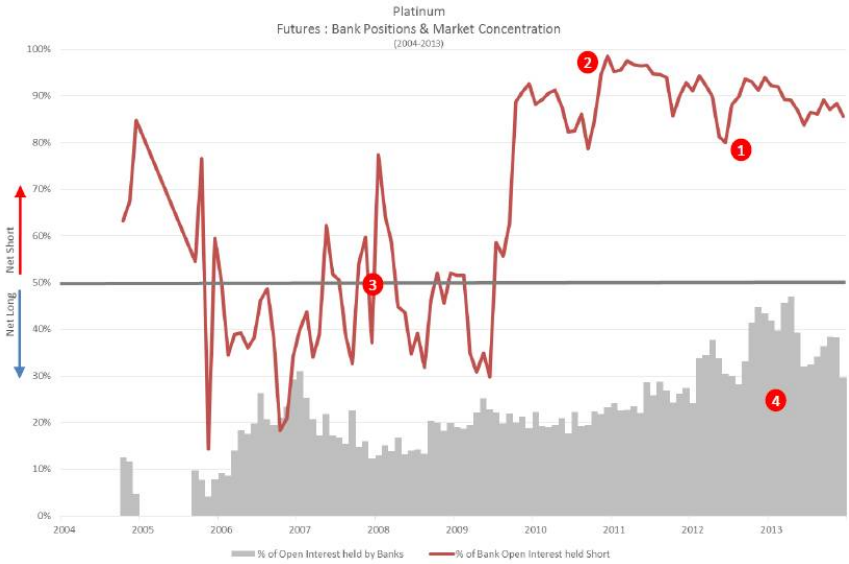
[34] Standard Bank Website, http://corporateandinvestment.standardbank.co.za/cib/products/global-markets/Commodities; Standard Bank 2014 Results Analysis at 88.

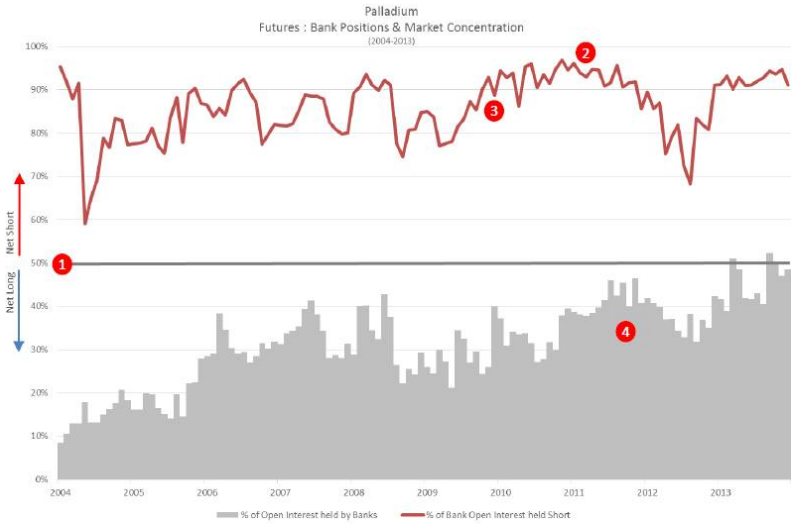
[35] Standard Bank website, http://corporateandinvestment.standardbank.com/standimg/CIB/Common/Products%20and%20services/Global%20Markets/CIBelectronic210x210%202.pdf.

[36] Standard Bank 2014 Results Analysis at 44.

[37] The data in this chart is drawn from the CFTC's Bank Participation Reports.



1. Banks have been net short Platinum futures for most all of the past decade (2004-13)
2. At its peak (mid to late 2010) banks' short interest were 95%+ of their total open interest. That is, banks held 20 times as many short contracts to long contracts.
3. From 2006 through 2009, Banks positions oscillate between long and short.
4. Banks held a significant portion of the overall open interest in gold, typically 20% - 40%.



1. Banks have been net short Palladium futures for all of the past decade (2004-13)
2. At its peak (mid to mid 2010) banks' short interest were 95% of their total open interest. That is, banks held 20 times as many short contracts to long contracts.
3. Short positions typically represented 80-90% of the total bank open interest.
4. Banks held a significant portion of the overall open interest in Palladium, typically between 30-50% of all open interests.

133. A short position on the NYMEX or a bank's hedge book is an undertaking to deliver platinum or palladium to a buyer for deferred, or, less commonly, immediate delivery. If a bank is "short" in its hedge book or NYMEX position, that bank will profit (or lose less) if the platinum or palladium price declines.

134. By maneuvering the Fixing towards lower prices over time, Defendants have worked throughout the entire Class Period to effect lower prices for platinum and palladium than would otherwise have prevailed in a free and openly competitive market.

135. Defendants were motivated to engage in coordinated manipulation of the Fixing by the strong financial incentive created by their "short" positions. A comparison of the banks' net positions with the direction of the Fixes, which Defendants controlled, reveals that the direction of the Fix prices is much more strongly correlated with the banks' net position than it is with the overall direction of the market on a given day. Plaintiffs' expert consultants' tests found this to be true to a statistically significant degree.

136. As seen in investigations into other similar benchmarks, Defendants were also motivated to trigger – or avoid triggering – "stop loss" orders and "margin calls" for their own benefit. A stop-loss order is a specified level at which a financial product (or commodity) should be sold to limit potential losses. Clients place stop-loss orders with entities such as Defendants to help manage the risk arising from movements in platinum and palladium prices. By accepting these orders, Defendants agreed to transact with the client at a specified price if the platinum or palladium benchmark reached that price.

137. A margin call is a demand from a broker to an investor to deposit additional funds or securities so that the investor's margin account is raised to a certain level. Margin calls are made when the funds or securities in an investor's margin account need to be raised because they have fallen below a certain level calculated by the broker as being necessary to cover potential losses. By manipulating the PM Fixing, Defendants frequently were able to trigger (or avoid triggering) such orders, avoiding much of the risk in such obligations. Defendants were also able to make margin calls that otherwise would not have been made.

D. Defendants' Manipulative Conduct Caused Sustained Price Suppression of Platinum and Palladium Prices

138. As the economic evidence shows, Defendants' manipulative conduct to suppress platinum and palladium prices around the PM Fixing caused prices to be artificially lower

throughout the Class Period than if set by free and open competition. This evidence includes the facts that:

a. Prices dropped during the PM Fixing many more times than they increased during every year in the Class Period;

b. The PM Fixing prices were among the lowest spot prices of the day much more often than they were among the highest spot prices of the day during every year in the Class Period;

c. Defendants' quoted prices were significantly lower than those of other market participants around the PM Fixing for every year in the Class Period;

d. There was a significantly large drop of average prices around the PM Fixing, which is not only due to episodic manipulation but also reflects the sustained price suppression outlined above;

e. Average price changes during the PM Fixing were sustainably negative at the same time that average price changes throughout the day were sustainably positive; and

f. Defendants had the motive to sustainably suppress prices throughout the Class Period in order to benefit their systematic short positions.

139. As a consequence, the harm suffered by Plaintiffs is not restricted to those specific days on which the most striking downward price drops occurred during the PM Fixing, but instead extends throughout the Class Period.

V. NUMEROUS PLUS FACTORS ARE PROBATIVE OF COLLUSION IN CONNECTION WITH THE FIXINGS

140. The structural design of the Fixing is a perfect storm of features that invite and promote manipulation and collusion, allowing such behavior to go unnoticed.

141. *First*, the Fixing is a *direct exchange of intended or future price information* among horizontal competitors. This is over and above the sharing of information *before* the Fixing, as confirmed by investigations such as that done by FINMA. Defendants compete across a wide range of financial services markets, including the markets for platinum and palladium and platinum and palladium derivatives. Defendants compete to attract customers, including those that trade platinum and palladium, platinum and palladium futures and options, platinum and palladium derivatives, and shares of Platinum-Palladium ETFs and they compete against each other in the proprietary trading of platinum and palladium. Despite the fact that they are competitors, Defendants communicate directly and privately through the Fixings – and even before – to set the price of platinum and palladium. Through this exchange of price impacting information, Defendants have ample opportunity to signal pricing desires to their competitors, and even to directly decide what the Fix prices will be.

142. *Second,* this exchange of pricing information takes place among a *very small group of competitors* with large market shares in the markets for platinum and palladium, platinum and palladium futures and options, and platinum and palladium derivatives. Unlike a benchmark price based on market-wide data, the Fixing vests control over the price-setting process in the hands of a small group of competitors, making it easy for them to influence prices. This structure makes collusion a rational strategy for increasing profits at the expense of the vast majority of the market that does not have the opportunity to set the spot price.

143. *Third*, the banks' communications with each other – such as the sharing of client orders and imminent orders – represent *undisclosed* communications, meaning Defendants have *access to nonpublic, real time information* about changes in the prices of platinum and palladium. This access to non-public information not only presents Defendants with unique

informational advantages in the markets for Platinum-Palladium Investments, as detailed below, but it also means the markets cannot monitor Defendants' conduct in setting the price of platinum and palladium.

144. *Fourth*, Defendants have a *direct financial interest in the outcome* of the Fixing. Defendants are not neutral participants in the Fixing. They are traders of platinum and palladium on the spot market and during the Class Period they had large short futures positions on NYMEX. As a result, they have a large incentive to influence the prices of the Fixing in a particular direction.

145. *Fifth*, the structure of the Fixing means that Defendants are *easily able to detect – and if necessary, retaliate against – defectors:* all Defendants will know if any other Defendant attempts to "break the cartel" because all Defendants are aware of the net demand represented by other Defendants during the fixing process, and of how that representation will affect the Fix prices that Defendants agreed to that day. Because the Fixing occurs twice daily, if any one Defendant selfishly deviates from a pre-agreed level of net demand during the Fixing (*i.e.*, represents a level of demand that would have the effect of moving the Fix prices other than toward the agreed artificial price), other Defendants have ample opportunity to extract revenge.

146. *Sixth*, until recently (following the launch of the investigations discussed above) there was *no independent administration or oversight* of the Fixing. Unlike other benchmarks that are administered by third parties, which compile quotes or use real-time data, the Fixing involved only the Defendants themselves, and was not overseen by any independent entity. No one was charged with monitoring the Fixing and guarding against manipulation or ensuring that information was not misused.

147. A recent regulatory investigation concluded that a lack of training and oversight

of the Precious Metals Desk (which also trades platinum and palladium)[38] had led to price manipulation by Barclays in a very similar context: "Precious Metals Desk staff had not been given adequate training or guidance regarding what they were, or were not, permitted to do during the Gold Fixing." They were given no guidance "on the circumstances in which they were or were not allowed to participate in the Gold Fixing and the circumstances in which they were or were not allowed to place proprietary trades whilst the Gold Fixing was taking place."[39] Likewise, at all relevant times there was no oversight whatsoever over the Fixing by any United Kingdom or foreign regulatory agency. These deficiencies in training and oversight as regards gold apply equally to all precious metals traded by the Precious Metals Desk including platinum and palladium.

148. Collectively, these structural or "plus" factors created a situation where collusion was most likely to occur, including because – until recently – there were no negative consequences to Defendants and their co-conspirators' decision to collude as competitors and thereby manipulate the Fixing – only rewards. For good reasons, no other benchmark price (besides the gold and silver Fixings) involves such unrestricted, direct price-setting among horizontal competitors. The United States Senate captured the crux of the issue when it stated that commodity activities such as those at issue here were "permeate[d]" by "conflicts of interest."[40] As alleged herein, Defendants seized upon this structure to manipulate the price of

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[38] U.K. Financial Conduct Authority, *Final Notice to Barclays Bank plc* (May 23, 2014), at 3.1 (definition of "Precious Metals Desk"), www.fca.org.uk/static/documents/final-notices/barclays-bank-plc.pdf.

[39] *Id*., at 4.31.

[40] United States Senate Permanent Subcommittee on Investigations, Committee on Homeland Security and Governmental Affairs, *Wall Street Bank Involvement with Physical Commodities* ("Senate Report") (Nov. 18, 2014) at 38, www.hsgac.senate.gov/download/report-wall-street-involvement-with-physical-commodities.

platinum and palladium in secret without fear of retribution until very recently.

VI. ONGOING GOVERNMENT INVESTIGATIONS CORROBORATE PLAINTIFFS' ALLEGATIONS

A. Multiple Investigations Are Underway Worldwide

149. The DOJ and CFTC are both actively investigating Defendants' and potential co-conspirators' manipulation of the price-setting mechanisms in precious metals markets, including specifically the platinum and palladium markets.[41] As part of that investigation, on November 14, 2014, the DOJ issued a document request to HSBC Holdings seeking "documents relating to a criminal antitrust investigation that the DOJ is conducting in relation to precious metals." In January 2015, the CFTC issued a subpoena to HSBC Bank USA seeking "documents related to HSBC Bank USA's precious metals trading operations."[42]

150. Switzerland's financial regulator FINMA has found "serious misconduct" by UBS in precious metal trading.[43] Indeed, FINMA's chief executive officer recently stated that the regulator has "seen clear attempts to manipulate fixes in the precious metals markets."[44]

151. The Swiss Competition Commission ("WEKO") has also recently announced that

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[41] *See* Jean Eaglesham and Christopher M. Matthews, *Big Banks Face Scrutiny Over Pricing of Metals: U.S. Justice Department investigates price-setting process for gold, silver, platinum, and palladium*, The Wall Street Journal (Feb. 23, 2015), www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801; *see also* Jan Harvey, *CFTC subpoenaed HSBC Bank USA for documents on metals trading*, Reuters (Feb. 23, 2015), http://www.reuters.com/article/2015/02/23/us-precious-hsbc-cftc-idUSKBN0LR1C520150223.

[42] HSBC Holdings PLC, 2014 Annual Report, at 454.

[43] FINMA, Press Release: FINMA sanctions foreign exchange manipulation at UBS (Nov. 12, 2014), www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

[44] Nicholas Larkin and Elena Logutenkova, *UBS Precious Metals Misconduct Found by Finma in FX Probe*, Bloomberg (Nov. 12, 2014), www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html.

it is actively investigating previous metal fixings, and price-fixing manipulation specifically.[45]

152. The CFTC, U.K. Financial Conduct Authority, and the German financial regulator BaFin have launched probes into benchmark price manipulation in the context of other precious metals. Much of the collusive, manipulative conduct described above has been confirmed by government regulators both domestically and abroad.

153. BaFin has interviewed employees of Deutsche Bank concerning potential precious metals price manipulation. Officials have also visited Deutsche Bank offices and requested emails and documents. BaFin president Elke Koenig stated publicly on January 16, 2014 that allegations concerning the market for precious metals are "particularly serious because such reference values are based – unlike LIBOR and Euribor – typically on transactions in liquid markets and not on estimates of the banks."[46] The day after Koenig's remarks, *Bloomberg* reported that Deutsche Bank had decided to sell its memberships in both the gold and silver fixes.[47]

154. Both Deutsche Bank and Barclays are reportedly conducting internal investigations into their roles in the improper manipulation of the gold fixing. Defendants also formed a steering committee to identify firms to advise on "how the process [of the gold fixing]

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[45] *See* Joshua Franklin, *Swiss watchdog says looking at possible gold market manipulation,* Reuters (Feb. 24, 2015) http://uk.reuters.com/article/2015/02/24/swiss-banks-probe-idUKFWN0VY02X20150224

[46] Karin Matussek and Oliver Suess, *Metals, Currency Rigging is Worse Than Libor, Bafin says*, Bloomberg (Jan. 17, 2014), www.bloomberg.com/news/2014-01-16/metals-currency-rigging-worse-than-libor-bafin-s-koenig-says.html.

[47] Maria Kolesnikova and Nicholas Larkin, *Deutsche Bank Withdraws from Gold Fixing in Commodities Cuts*, Bloomberg (Jan. 17, 2014), www.bloomberg.com/news/2014-01-17/deutsche-bank-withdraws-from-gold-fixing-in-commodities-cutback.html. Deutsche Bank ultimately resigned from the Fixing without a replacement because it was unable to sell its seat.

could be improved."[48] The CEO of Defendant BNS has called for an overhaul of the London gold fixing, stating that the "fix is dated" and it "should be reviewed[.]"[49] Joaquin Almunia, the European Union's antitrust chief, is also reported to be conducting a preliminary probe into "possible foreign-exchange manipulation"[50] (which includes gold and silver as they are considered "currencies"), with Mr. Almunia commenting to the *Financial Times* that "perhaps manipulation [of benchmarks] is not the exception but the rule."[51]

155. A recent report by the United States Senate Permanent Subcommittee on Investigations documented conduct strikingly similar to that alleged by Plaintiffs across a wide range of commodities. It noted that across the activities investigated, "financial companies often traded in both the physical and financial markets at the same time, with respect to the same commodities, frequently using the same traders on the same trading desk. In some cases, after purchasing a physical commodity business, the financial holding company ramped up its financial trading. . . . In some cases, financial holding companies used their physical commodity activities to influence or even manipulate commodity prices."[52]

156. Another problem the Senate Report focused on was the "conflicts of interest

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[48] Suzi Rig, Liam Vaughan & Nicholas Larkin, *Century-Old London Gold Benchmark Fix Said to Face Overhaul*, Bloomberg (Jan. 21, 2014), www.bloomberg.com/news/2014-01-21/century-old-london-gold-fix-said-to-face-overhaul-amid-scrutiny.html.

[49] Sarah Jacob, *Scotiabank CEO Porter Says 'Dated Gold Fix Needs Review*, Bloomberg (Mar. 5, 2014), www.bloomberg.com/news/2014-03-05/scotiabank-ceo-porter-says-dated-gold-fix-should-be-reviewed.html.

[50] Karin Matussek and Oliver Suess, *Metals, Currency Rigging is Worse Than Libor, Bafin says*, Bloomberg (Jan. 17, 2014), www.bloomberg.com/news/2014-01-16/metals-currency-rigging-worse-than-libor-bafin-s-koenig-says.html.

[51] Daniel Schäfer, Neil Hume and Xan Rice, *Barclays fined £26m for trader's gold rigging*, Financial Times (May 23, 2014), www.ft.com/cms/s/0/08cafa70-e24f-11e3-a829-00144feabdc0.html.

[52] Senate Report, at 5.

between a bank and its clients" when banks mix the business of banking with commerce. The report found that "[p]ossible conflicts of interest permeate virtually every type of commodity activity" and illustrated the point thus: "If the bank's affiliate operates a commodity-based exchange traded fund backed by gold, the bank may ask the affiliate to release some of the gold into the marketplace and lower gold prices, so that the bank can profit from a short position in gold futures or swaps, even if some clients hold long positions."[53]

B. FINMA Found Commodity Metals Problems at UBS

157. A 2013 investigation by FINMA, the Swiss regulator, found that UBS's foreign exchange currency dealers had "repeatedly and over a longer period of time tried or accepted repeated attempts to manipulate foreign currency reference values by the aggressive execution of large volume orders in order to generate a profit for themselves, the bank or for third parties;" and entered "agreements with other banks in regards to a possible influencing of the foreign currency reference values," following which the traders "would congratulate each other [in chatrooms] if they as a whole or as individuals were successful in moving the reference value or the foreign currency exchange rate in the desired direction."[54]

158. Such practices were not restricted to UBS' currency traders, but instead "were at least partially applied [to precious metals] PM spot trading as well." This occurred through precious metals traders: "(i) sharing of order book information with third parties (including stop loss customers); (ii) sharing of large orders to be currently executed or pending with third parties

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[53] *Id.* at 37-38. Similarly, each of the case studies documented in the Senate Report uncovered evidence that banks "used their physical commodity activities to gain access to commercially valuable nonpublic information that could be used to benefit their financial trading activities." *Id.* at 6.

[54] Foreign Exchange Trading from the UBS AG: Inspection by the FINMA (Nov. 12, 2014), at 12 (translation from German), *available (in German) at* www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

(collusion among traders at various banks); (iii) sharing the names of bank customers with third parties; (iv) front running; and (v) triggering stop loss orders and digital options." As alleged above, Defendants engaged in similar practices in respect of the PM Fixing.

C. Barclays Manipulated the Gold Fixing Using the Same Methods Alleged Here

159. The U.K. Financial Conduct Authority recently concluded an investigation into the actions of Barclays' Precious Metals Desk, finding that the bank's conduct violated several of the FCA's "Principles of Business," starting from the time Barclays joined the gold fixing in 2004. In particular, the FCA found that "Barclays failed to: (i) create or implement adequate policies or procedures to properly manage the way in which Barclays' traders participated in the Gold Fixing; (ii) provide adequate specific training to Precious Metals Desk staff in relation to their participation in the Gold Fixing; and (iii) create systems and reports that allowed for adequate monitoring of traders' activity in connection with the Gold Fixing."[55]

160. As a result of these failures, "Barclays was unable to adequately monitor what trades its traders were executing in the Gold Fixing or whether those traders may have been placing orders to affect inappropriately the price of gold in the Gold Fixing." These failures were deemed "particularly serious given the importance of the Gold Fixing as a price-setting mechanism which . . . provides market users with an opportunity to buy and sell gold at a single quoted price; therefore, any inappropriate conduct in the Gold Fixing could affect both UK and international financial markets."

161. Barclays was also found to have failed "to adequately manage certain conflicts of interest between itself and its customers." In particular, Barclays failed to adequately manage

[55] U.K. Financial Conduct Authority, *Final Notice to Barclays Bank plc* (May 23, 2014) at 2.3.

the inherent conflict of interest that existed from (i) Barclays participating in the gold fixing and contributing to the price fixed during the gold fixing, while at the same time also (ii) selling to customers options products that referenced, and were dependent on, the price of gold fixed in the gold fixing.

162. Former precious metals traders interviewed by the press have stated that "there has long been an understanding among [bullion banks] that sellers and buyers of digitals would try to protect their positions if the benchmark price and barrier were close together near expiry."[56] Four traders interviewed by *Bloomberg News* said that it was "common practice" among bullion banks to move prices to profit or limit losses from barrier options of the kind involved in the Barclays scenario.[57]

D. Other Relevant Findings

163. Defendants' conduct at issue in this case is part of a larger set of revelations emerging about banks in the context of these other financial benchmarks. The manipulation alleged is nearly ubiquitous, cutting across what were previously thought to be distinct markets and entities (regarded even as competitors). For instance, as outlined in part above, UBS AG ("UBS"), Citibank, N.A. ("Citibank"), JPMorgan Chance Bank, N.A. ("JPMorgan"), and Royal Bank of Scotland pls ("RBS") were each recently subject to multiple investigations resulting in substantial fines in connection with their conspiring to manipulate foreign exchange ("Forex") benchmarks.[58] Among the conduct these banks have admitted to engaging in was disclosure of

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[56] Xan Rice, *Trading to influence gold price fix was 'routine,'* Financial Times (June 3, 2014), www.ft.com/intl/cms/s/0/7fd97990-eb08-11e3-9c8b-00144feabdc0.html.

[57] Dave Michaels, Suzi Ring and Julia Verlaine, *Barclays Fine Spurs U.K. Scrutiny of Derivatives Conflict*, Bloomberg (June 5, 2014), www.bloomberg.com/news/2014-06-05/barclays-fine-leads-to-new-u-k-scrutiny-of-derivatives-conflict.html.

[58] Defendant Barclays is reported to have avoided similar reports and fines only because it opted out of settlement talks "at the last minute." *See* Margot Patrick and Max Colchester,

confidential customer order information and trading positions, adjustment of trading positions to accommodate the interests of the collective group, trading to trigger customers' limit orders or customers' barrier options for the bank's benefit and to the detriment of those customers, and agreeing to enter into trading strategies to manipulate benchmark prices.

164. As noted by FINMA, Defendants' collusion in the context of precious metals occurred in ways similar and, at times, nearly identical to those revealed by recent regulatory investigations into manipulation of other benchmarks, including in the foreign exchange market. Among the banks targeted by such investigations is Defendant HSBC.

165. HSBC recently settled with the CFTC over its manipulation of Forex (also known as "FX") benchmarks. The CFTC found that HSBC and other banks used private chat rooms to communicate and plan their manipulation.[59] During these communications, HSBC traders disclosed confidential customer order information and trading positions, altered trading positions to accommodate the interests of the collective group, and agreed on trading strategies as part of an effort by the group to attempt to manipulate Forex benchmark rates. The manipulation occurred, according to the CFTC, because HSBC failed to adequately assess risks and lacked internal controls to detect and deter misconduct.

166. HSBC also recently resolved similar charges by the U.K. FCA. The FCA found that HSBC attempted to manipulate foreign exchange rates in collusion with traders at other firms for HSBC's benefit and to the detriment of clients and/or other market participants. HSBC

Barclays Pulls Out of Forex Settlement Amid New York Complications, The Wall Street Journal (Nov. 12, 2014), http://online.wsj.com/articles/barclays-pulls-out-of-forex-settlement-amid-new-york-complications-1415792606.

[59] U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of HSBC Bank plc* (Nov. 11, 2014), at 2, www.cftc.gov/ucm/groups/public/@lrenforcementactions/documents/legalpleading/enfhsbcorder111114.pdf.

also shared confidential client information with other firms and attempted to trigger clients' stop loss orders for its own benefit and to the detriment of those clients and/or other market participants.[60] Echoing the FCA findings regarding Barclays and the gold fixing, the FCA found that HSBC did not adequately manage risk, in part by failing to discharge its responsibilities with regard to confidentiality, conflicts of interest, and trading conduct.[61]

167. Given the admissions of wrongdoing by Barclays, statements of the United States Senate, findings by FINMA about UBS' attempts to manipulate precious metals, the statements of former precious metals traders in response to developments, and the strikingly similar incentives and opportunities in the platinum and palladium markets as others shown to be manipulated, all coupled with the extensive empirical analysis presented above, Defendants' wrongdoing in the platinum and palladium markets is more than merely plausible – it is virtually undeniable.

VII. DEFENDANTS' CONDUCT RESTRAINED TRADE, DECREASED COMPETITION, AND ARTIFICIALLY LOWERED PRICES, THEREBY INJURING PLAINTIFFS

A. Prices for Platinum-Palladium Investments – Including The Spot Market as Governed by the Fixing – are Inextricably Linked, and Form a Single Market

168. As described above, the prices of Platinum-Palladium Investments – including as set by the PM Fixing – are highly correlated. The interdependence of prices for Platinum-Palladium Investments is not surprising given that each investment is linked to the same

[60] U.K. Financial Conduct Authority, *Final Notice to HSBC Bank plc* (Nov. 11, 2014), at 3, www.fca.org.uk/your-fca/documents/final-notices/2014/hsbc-bank-plc.

[61] *Id*. The CFTC has also released multiple examples of trader misconduct in private chat rooms by which Forex-trading banks – including Defendant HSBC – were able to profit from manipulation of currency benchmarks. *See* Commodity Futures Trading Commission, *Examples of Misconduct in Private Chat Rooms* (Nov. 11, 2014), www.cftc.gov/ucm/groups/public/@newsroom/documents/file/hsbcmisconduct111114.pdf.

underlying physical commodity. In the case of platinum and palladium NYMEX futures, for example, the price of platinum and palladium futures is linked to the price of physical, or spot, platinum and palladium simply because futures prices are an estimate of the future value delivery of physical, or spot platinum and palladium. In the case of Platinum-Palladium ETFs, for example, the correlation exists because ETFs are structured to reflect spot prices.[62]

169. The interdependence of prices for Platinum-Palladium Investments and as set by the PM Fixing is also not surprising given that the PM Fixes are understood to set – and treated worldwide by participants in the Platinum-Palladium Investments market as setting – a *benchmark price* for platinum and palladium, regardless of the form or instrument through which the platinum and palladium-related investment was trading.

B. Defendants' Artificial Lowering of the Price of Platinum and Palladium, Including at the PM Fixing, Directly Impacted the Market for Platinum-Palladium Investments

170. Defendants' conduct constitutes a *per se* violation of the antitrust laws because of its clear and obvious risk of inflicting anticompetitive impact and economic injury. Defendants operated as a secretive cartel and engaged in a price-fixing scheme that inherently reduced the free and unfettered competition the Sherman Act was designed to preserve and promote. Defendants' scheme to fix the benchmark price at artificially suppressed levels directly and immediately impacted the market for Platinum-Palladium Investments (a market in which Defendants participate).

171. Defendants hold themselves out as horizontal competitors (as buyers, sellers, and

[62] *See, e.g.*, ETFS PPLT Prospectus (December 2, 2014), at 23: "The investment objective of the Trust is for the Shares to reflect the performance of the price of physical platinum, less the Trust's expenses."; ETFS PPAL Prospectus (December 2, 2014), at 23: "The investment objective of the Trust is for the Shares to reflect the performance of the price of physical palladium, less the Trust's expenses."

brokers) in the market for Platinum-Palladium Investments. As such, they should compete *with and against* each other when trading either their own proprietary books or the assets and investments of their clients. The fact that Defendants participated in the Fixing did not give them permission to suspend this competition. Indeed, the Fixing was intended to yield market outcomes that depended on Defendants operating as competitors. Instead of acting as competitors, however, Defendants agreed to restrain trade in order to pursue collective goals and to manipulate the market by collusion and coordination, as described above. Defendants' collusive price fixing was inimical to competition and restrained trade in the affected market (and any applicable submarkets).

172. As explained supra, the PM Fixing was supposed to be – and was understood by market participants as being – a reliable benchmark price for platinum and palladium, including the market for Platinum-Palladium Investments, because it reflected actual market supply and demand. This was the case for at least two reasons.

173. First, the chair for the PM Fixing was supposed to commence the Walrasian auction process used in the Fixings by announcing (and then soliciting supply or demand levels from Defendants in response to) a figure that was the then-prevailing US Dollar spot price for platinum and palladium. That is, *the starting point* for each day's PM Fixing was held out to be the spot price of platinum and palladium at 2:00 p.m. in London (9:00 a.m. in New York). The spot price for platinum and palladium is the price for delivered physical platinum and palladium, and thus – ultimately – the price upon which all platinum and palladium-based or platinum and palladium-derived investments are based.

174. Second, the auction that followed the chair's announcement of the prevailing spot price was supposed to be a *genuine* and *competitive* auction, based on *actual market supply and*

demand for platinum and palladium. Defendants were supposed to announce whether they were buyers or sellers at the chair's price based on net supply/demand for spot platinum and palladium from their order books. This supply and demand was supposed to consist of orders from customers – market participants free to place orders with any Defendant if one Defendant's prices were not sufficiently competitive – and/or orders from Defendants themselves, where Defendants were engaging in proprietary trading, acting as direct market participants.

175. Trade was accordingly restrained and competition decreased in the market for Platinum-Palladium Investments by any manipulation of either: (1) the price at which the chair commenced the PM Fixing on a given day, or (2) the levels of market supply and demand that moved the PM Fix price to the level at which it was ultimately fixed. As shown above, however, Defendants repeatedly colluded to ensure there was coordinated manipulation and fixing of both the opening price and the quoted buy/sell levels.

176. Defendants colluded to manipulate the price at which the chair opened the Fixing on a given day by placing "spoof orders," engaging in "wash sales," as well as collusively sharing and acting on non-public information regarding client orders (including stop-loss orders), including shortly before the PM Fixing. They did this in order to manipulate the spot price for platinum and palladium, and thus the "prevailing" price that the chair would announce at commencement of the Fixings.

177. Defendants also colluded to manipulate the actual levels of market supply and demand quoted by the Fixing's members – and thus the direction and extent of any movement of the starting price during the Fixing – by the means described in the preceding paragraph as well as by falsely representing the net supply or demand on their order books, or by "netting off" or "building" certain orders before the Fixing commenced.

178. Additionally, Defendants – and co-conspirators who were not members of the Fixing – colluded to manipulate the market for Platinum-Palladium Investments in the ways described above at times of the day other than around the PM Fixing.

179. These schemes were undertaken for the purpose of manipulating the benchmark price that would be reached by that day's Fixing, or otherwise artificially to lower the price of Platinum-Palladium Investments. The resulting price movements had a significant impact on price for platinum and palladium spot and for any Platinum-Palladium Investment connected to or affected by the spot price for platinum and palladium, and thus by the PM Fixing.

180. Defendants' ability to influence the PM Fixing benchmark price, including by way of manipulation of the price at which the PM Fixing would commence, is amply demonstrated by the structure of the Fixing and the empirical evidence discussed above. Defendants thus have considerable power over the market for Platinum-Palladium Investments, including those which expressly reference or in practice rely on the Fixing price.

181. Accordingly, to the extent that Defendants and their co-conspirators' collusive manipulation artificially lowered prices in the spot market for platinum and palladium or as reached by the PM Fixing, it also artificially lowered prices in the broader market for Platinum-Palladium Investments, including because prices for each of the Platinum-Palladium Investments implicitly and expressly followed the PM Fixing price. The effects of Defendants' collusive manipulation of the above-described market were purposeful, intended to maximize their profits, and occurred at least on the days set out in Appendices A and B.

C. Plaintiffs, as Sellers in the Market for Platinum-Palladium Investments, Were Injured by Transacting at Lowered Prices Created by Defendants' Collusive Conduct

182. Plaintiffs were sellers in the market for Platinum-Palladium Investments, and were affected by movements in prices in the platinum and palladium spot market, and by the

price set by the PM Fixing.

183. Defendants and their co-conspirators' collusive manipulation artificially lowered prices in the market for Platinum-Palladium Investments. As sellers in that market, Plaintiffs thus received lower sales prices than they would have received in a competitive market free of Defendants' collusive and manipulative conduct.

184. As a direct result of Defendants and co-conspirators' conduct, Plaintiffs were injured in their business or property and suffered harm in respect of the sales they conducted where the relevant sales price was artificially lowered by collusive manipulation.

VIII. EQUITABLE TOLLING OF THE STATUTE OF LIMITATIONS DUE TO DEFENDANTS' CONCEALMENT OF THE CONSPIRACY

185. Defendants and their co-conspirators concealed their wrongdoing in manipulating the Fixing. Thus, the statute of limitations relating to the claims for relief alleged herein was tolled, due both to Defendants' and their co-conspirators affirmative acts of concealment and the inherently self-concealing nature of their private, unregulated conduct.

186. Defendants' and their co-conspirators success in concealing their collusion was facilitated by their tremendous control over global financial markets and the platinum and palladium markets in particular.

187. Neither Plaintiffs nor the Class knew of Defendants' and their co-conspirators unlawful and self-concealing manipulative acts and could not have discovered them by the exercise of reasonable due diligence, if at all, at least prior to public reports of government investigations. Plaintiffs and the Class also lacked any basis for identifying the wrongdoers or calculating damages before that date. Indeed, Defendants' and their co-conspirators' conduct concerning the Fixing was so well hidden that Defendants and their co-conspirators kept global regulators unaware of such conduct for years.

188. Following the reports of government investigations becoming public, Plaintiffs undertook investigation into possible manipulation of the Fixing, retained counsel, and retained economic consulting experts to undertake sophisticated economic investigation of the Fixing and whether they were subject to manipulation by Defendants and their co-conspirators.

189. Reasonable due diligence could not have uncovered Defendants and their co-conspirators manipulative conspiracy because: (i) the Fixing was held out as being set by an impartial auction based on market factors; (ii) the Fixing is conducted in private; (iii) Defendants' and their co-conspirators trading positions and trading strategies are not public information; (iv) the bilateral, non-exchange traded nature of the transactions at issue; (v) the highly specialized and esoteric nature of the different aspects of the platinum and palladium markets make it extraordinarily difficult for an ordinary person to assess improprieties; and (vi) neither Defendants nor their co-conspirators told Plaintiffs or other Class Members that they were conspiring to fix, stabilize, maintain, and/or otherwise manipulate the Fixings.

190. Defendants and their co-conspirators also took active steps to conceal evidence of their misconduct from Plaintiffs, the Class, regulators, and the public including, *inter alia*: (i) holding out the Fixing as impartial, arms-length processes that reflected market factors; (ii) stating that platinum and palladium prices reflected normal market forces; (iii) maintaining the secrecy of the Fixing; (iv) avoiding any discussion in public fora of the Fixings and/or manipulation of the Fixing; (v) refusing to comment on, or affirmatively denying allegations of, manipulation reported by the press; (vi) initiating sham trades they never intended to execute in order to influence artificially the price of platinum and palladium; (vii) secretly trading their own proprietary platinum and palladium positions; and (viii) using non-public proprietary trading platforms directly to coordinate intended price movements.

191. In addition, Defendants and their co-conspirators also failed to have the proper internal controls in place to detect internal misconduct concerning the Fixing. Such internal failures made it all the more difficult for Plaintiffs, the Class, government regulators, and the public to become aware of Defendants' and their co-conspirators misconduct.

192. As a result of Defendants' and their co-conspirators' affirmative steps to conceal their improper conduct, their willful decision not to put in place proper controls to detect improper conduct, the self-concealing nature of the price-fixing conspiracy, and the resulting lack of public information about material aspects of the conspiracy, collusion, and trading based on nonpublic information, the statute of limitations was tolled for Plaintiffs' claims.

IX. CLASS ACTION ALLEGATIONS

193. Plaintiffs bring this action on behalf of themselves and as a class action under Rule 23(a) and (b)(3) of the Federal Rules of Civil Procedure, seeking relief on behalf of the following class (the "Class"):

> All persons or entities who during the period from 2008 through 2014 (the "Class Period"): (i) sold physical platinum or palladium; (ii) sold platinum or palladium futures contracts traded on NYMEX; (iii) sold shares in platinum or palladium ETFs; (iv) sold platinum or palladium call options traded on NYMEX; (v) bought platinum or palladium put options traded on NYMEX; (vi) sold over-the-counter platinum or palladium spot or forward contracts or platinum or palladium call options; or (vii) bought over-the-counter platinum or palladium put options.
>
> Excluded from the Class are Defendants and their employees, affiliates, parents, subsidiaries, and co-conspirators, whether or not named in this Complaint, and the United States Government, and other governments.

194. Plaintiffs believe that there are many thousands of Class Members as described above, making the Class so numerous and geographically dispersed that joinder of all Class Members is impracticable.

195. There are questions of law and fact common to the Class that relate to the existence of the conspiracy alleged, and the type and common pattern of injury sustained as a result thereof, including, but not limited to:

a. Whether Defendants and their co-conspirators engaged in a combination or conspiracy to fix, raise, maintain, stabilize and/or otherwise manipulate the platinum and palladium benchmark prices in violation of the Sherman Act and/or Commodity Exchange Act;

b. The identity of the participants in the conspiracy;

c. The duration of the conspiracy;

d. The nature and character of the acts performed by Defendants and their co-conspirators in furtherance of the conspiracy;

e. Whether the conduct of Defendants and their co-conspirators, as alleged in this Complaint, caused injury to the business or property of Plaintiffs and the Class Members;

f. Whether Defendants and their co-conspirators fraudulently concealed the conspiracy's existence from Plaintiffs and the Class Members;

g. The appropriate injunctive and equitable relief for the Class; and

h. The appropriate measure of damages sustained by Plaintiffs and the Class Members.

196. Plaintiffs' claims are typical of the claims of the other Class Members. Plaintiffs and the Class Members sustained damages arising out of Defendants' common course of conduct in violation of law as complained of herein. The injuries and damages of each Class Member were directly caused by Defendants' wrongful conduct in violation of the laws as alleged herein.

197. Plaintiffs will fairly and adequately protect the interests of the Class Members. Plaintiffs are adequate representatives of the Class and have no interests adverse to the interests of absent Class Members. Plaintiffs have retained counsel competent and experienced in class action litigation, including commodity futures manipulation and antitrust class action litigation.

198. The prosecution of separate actions by individual Class Members would create a risk of inconsistent or varying adjudications.

199. The questions of law and fact common to the Class Members predominate over any questions affecting only individual members, including legal and factual issues relating to liability and damages.

200. A class action is superior to other available methods for the fair and efficient adjudication of this controversy. Treatment as a class action will permit a large number of similarly situated persons to adjudicate their common claims in a single forum simultaneously, efficiently and without duplication of effort and expense that numerous, separate individual actions, or repetitive litigation, would entail. The Class is readily definable and is one for which records should exist in the files of Defendants and their co-conspirators, Class Members, or the public record. Class treatment will also permit the adjudication of relatively small claims by many Class Members who otherwise could not afford to litigate the claims alleged herein, including those for antitrust. This class action presents no difficulties of management that would preclude its maintenance as a class action.

CAUSES OF ACTION

CLAIM ONE

VIOLATION OF 15 U.S.C. § 1
AGREEMENT RESTRAINING TRADE

201. Plaintiffs hereby incorporate each preceding and succeeding paragraph as though fully set forth herein.

202. Defendants and their unnamed co-conspirators entered into and engaged in a combination and conspiracy that was an unreasonable and unlawful restraint of trade in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, *et seq.*

203. During the Class Period, Defendants entered into a series of agreements to reduce competition amongst themselves by fixing and/or manipulating platinum and palladium prices before and during the Fixings and, as a result, the price of Platinum-Palladium Investments, including NYMEX futures.

204. This conspiracy to manipulate platinum and palladium market prices and the benchmark price caused injury to both Plaintiffs and the Class by depriving them of the benefit of accurate platinum and palladium benchmark prices reflecting true market conditions, as well as accurate spot platinum and palladium prices for some period during and following Defendants' unlawful conduct, and thus received, upon execution of their trades, less in value than they would have received absent Defendants' wrongful conduct.

205. The conspiracy is a *per se* violation of Section 1 of the Sherman Act. Alternatively, the conspiracy resulted in substantial anticompetitive effects in the platinum and palladium markets. There is no legitimate business justification for, or pro-competitive benefits from, Defendants' conduct.

206. As a direct and proximate result of Defendants' violation of Section 1 of the Sherman Act, Plaintiffs and the Class have suffered injury to their business and property throughout the Class Period.

207. Plaintiffs and the Class are entitled to treble damages for the violations of the Sherman Act alleged herein. Plaintiffs and the Class are also entitled to an injunction against Defendants preventing and restraining the violations alleged herein.

CLAIM TWO

VIOLATION OF 7 U.S.C. §§ 1 *et seq.* MANIPULATION IN VIOLATION OF THE COMMODITY EXCHANGE ACT, INCLUDING CFTC RULE 180.2

208. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

209. By their intentional misconduct, the Defendants and their co-conspirators each violated Sections 6(c)(3) and 9(a)(2) of the Commodity Exchange Act (the "CEA"), 7 U.S.C. §§ 9(3), 13(a)(2), and CFTC Rule 180.2 adopted under the CEA ("Rule 180.2") and caused prices of exchange-traded platinum and palladium futures and options and over-the-counter platinum and palladium forwards and options to be artificial during the Class Period.

210. Defendants' and their co-conspirators' trading and other activities alleged herein constitute market power manipulation of the prices of exchange-traded platinum and palladium futures and options and over-the-counter platinum and palladium forwards and options in violation of Sections 9(a) and 22(a) of the CEA, 7 U.S.C. §§ 13(a) and 25(a), and Rule 180.2.

211. Defendants' and their co-conspirators' manipulation deprived Plaintiffs and the Class of a lawfully operating market during the Class Period.

212. Plaintiffs and others who transacted in exchange-traded platinum and palladium futures and options and over-the-counter platinum and palladium forwards and options during the Class Period transacted at artificial and unlawful prices resulting from Defendants' and co-conspirators' manipulations in violation of the CEA, 7 U.S.C. § 1, *et seq.*, and Rule 180.2, and as a direct result thereof were injured and suffered damages. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM THREE

VIOLATION OF 7 U.S.C. §§ 1 *et seq.* EMPLOYMENT OF MANIPULATIVE OR DECEPTIVE DEVICE OR CONTRIVANCE IN VIOLATION OF THE COMMODITY EXCHANGE ACT, INCLUDING CFTC RULE 180.1

213. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

214. By their intentional misconduct, the Defendants and their co-conspirators each violated Sections 6(c)(1) and 9(a)(2) of the Commodity Exchange Act (the "CEA"), 7 U.S.C. §§ 9(1), 13(a)(2), and CFTC Rule 180.1 adopted under the CEA ("Rule 180.1") and caused prices of exchange-traded platinum and palladium futures and options and over-the-counter platinum and palladium forwards and options to be artificial during the Class Period.

215. Defendants' and their co-conspirators' trading and other activities alleged herein constitute market power manipulation of the prices of exchange-traded platinum and palladium futures and options and over-the-counter platinum and palladium forwards and options in violation of Sections 9(a) and 22(a) of the CEA, 7 U.S.C. §§ 13(a) and 25(a), and Rule 180.1.

216. In violation of CEA Section 6(c)(1), and CFTC Rule 180.1, Defendants and co-conspirators also caused to be delivered for transmission false or misleading or inaccurate reports of the Fixings, *i.e.*, false reports concerning market information or conditions that affected or tended to affect the price of platinum and palladium, a commodity in interstate commerce. Defendants and co-conspirators did so either knowingly, intentionally, or acting in reckless disregard of the fact that such reports were false, misleading or inaccurate.

217. Defendants' and their co-conspirators' manipulation deprived Plaintiffs and the Class of a lawfully operating market during the Class Period.

218. Plaintiffs and others who transacted in exchange-traded platinum and palladium

futures and options and over-the-counter platinum and palladium forwards and options during the Class Period transacted at artificial and unlawful prices resulting from Defendants' and co-conspirators' manipulations in violation of the CEA, 7 U.S.C. § 1, *et seq.*, and Rule 180.1, and as a direct result thereof were injured and suffered damages. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM FOUR

VIOLATION OF 7 U.S.C. §§ 1 *et seq.* PRINCIPAL-AGENT LIABILITY IN VIOLATION OF THE COMMODITY EXCHANGE ACT

219. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

220. Each Defendants is liable under Section 2(a)(1)(B) of the CEA, 7 U.S.C. § 2(a)(1)(B), for the manipulative acts of their agents, representatives, and/or other persons acting for them in the scope of their employment.

221. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM FIVE

VIOLATION OF 7 U.S.C. §§ 1 *et seq.* AIDING AND ABETTING LIABILITY IN VIOLATION OF THE COMMODITY EXCHANGE ACT

222. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

223. Defendants and their co-conspirators knowingly aided, abetted, counseled, induced and/or procured the violations of the CEA alleged herein. Defendants did so knowing of each other's, and their co-conspirators', manipulation of the Fixing, and willfully intended to

assist these manipulations, which resulted in platinum and palladium futures and options pricing becoming artificial during the Class Period in violation of Sections 13 and 22(a)(1) of the CEA, 7 U.S.C. §§ 13c(a), 25(a)(1).

224. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM SIX

UNJUST ENRICHMENT

225. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

226. Because of the acts of Defendants and their co-conspirators as alleged herein, Defendants have been unjustly enriched at the expense of Plaintiffs and the Class.

227. Plaintiffs and the Class seek restoration of the monies of which they were unfairly and improperly deprived, as described herein, by way of transactions for the sale or purchase of Platinum-Palladium Investments entered into with Defendants or their co-conspirators.

PRAYER FOR RELIEF

Plaintiffs demands relief as follows:

A. That the Court certify this lawsuit as a class action under Rules 23(a), and (b)(3) of the Federal Rules of Civil Procedure, that Plaintiffs be designated as class representatives, and that Plaintiffs' counsel be appointed as Class counsel for the Class;

B. That the unlawful conduct alleged herein be adjudged and decreed to violate Section 1 of the Sherman Act;

C. That Defendants be permanently enjoined and restrained from continuing and maintaining the conspiracy alleged in the Complaint;

D. That the Court award Plaintiffs and the Class damages against Defendants for their violations of federal antitrust laws, in an amount to be trebled in accordance with such laws, plus interest;

E. That the Court find that Defendants violated the CEA and award appropriate damages;

F. That the Court award Plaintiffs and the Classes their costs of suit, including reasonable attorneys' fees and expenses, as provided by law; and

G. That the Court direct such further relief it may deem just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(a) of the Federal Rules of Civil Procedure, Plaintiffs demand a jury trial as to all issues triable by a jury.

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